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raniff Airways'
aude G. Adams
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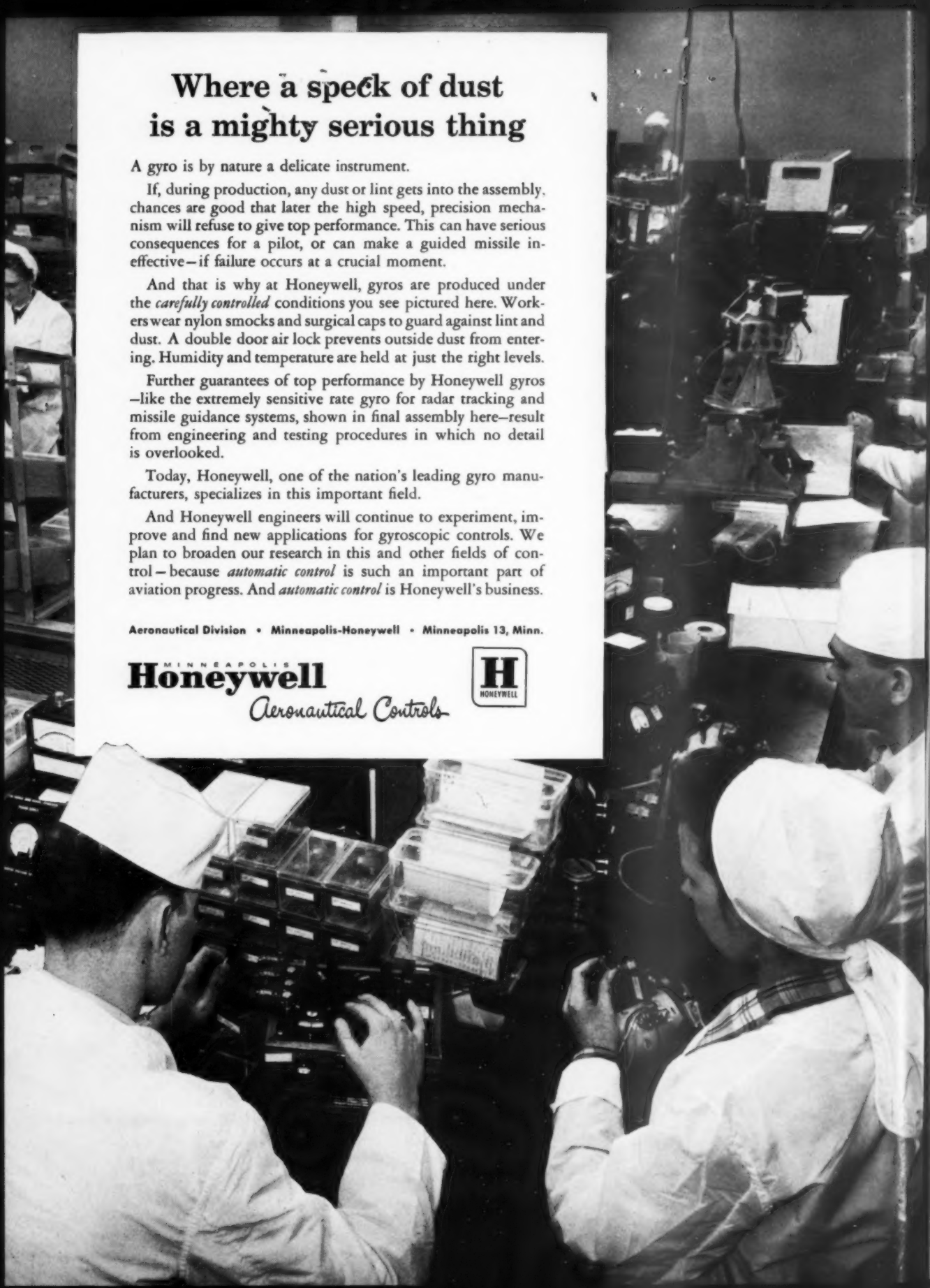
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NEWSLETTER

Volume 15 Number 32 January 7, 1952

U. S. commercial air transport in 1951 joined the ranks of the billion dollar industries, according to Air Transport Association.

Passenger traffic dominated the picture, accounting for about 80% of the $1,043,324,812 total operating revenues, which were 21% over 1950.

Included in the figures were 50 irregular service lines, 16 domestic trunks, 10 international lines, 15 local service, four certificated cargo carriers. Not included were three territorial carriers, Alaskan lines other than Pan American, and an unknown number of smaller irregular service carriers.

Nearly 25,000,000 passengers piled up more than 14 billion passenger-miles in 1951, a gain of 29% over 1950. Airlines collected over $67 million in transportation taxes for the government.

Only mail showed a decline in revenues, despite a 26% increase in volume. This was mainly attributable to big reductions in mail pay to domestic lines.

Substantial increases in air express ton-mile receipts resulted from an increase in domestic air express charges. Ton-mile freight receipts gained 10%.

Here's how 1951's operating revenues were divided and percentage increase over 1950:

Domestic trunks	$657,294,363	25.4%
Local service	35,924,529	28 %
International	278,915,920	7.9%
Certificated cargo ...	16,700,000	37.7%
Irregular	54,500,000	52.2%
Total	$1,043,334,812	21.4%

•

Aircraft Industries Association president Adm. DeWitt C. Ramsey expects fiscal 1953 appropriations for aircraft procurement to exceed $10 billion and predicts a production rate of better than 1,500 planes a month by late 1952. In a year-end review, the AIA head also made the following points:

Machine tool deliveries should jump in 1952, causing a hike in plane output.

Aircraft production in 1952 will equal the World War II mark in airframe pounds, although it will be far behind in terms of units.

Employment should hit the 1,000,000 mark by the end of 1952. About 600,000 are on aircraft payrolls now and 2,000,000 were on during the wartime peak.

Sales volume of the 15 largest companies should reach $2.5 billion in 1951 as against $1.8 billion in 1950. Profits, however, will be substantially less than the $83.5 million for the 15 firms in 1950.

Although exact figures are classified, plane production in 1951 was between 4,500 and 5,000 as compared with 3,000 in 1950. Only 65 commercial transports were delivered in 1951 as against 91 in 1950 but commercial backlogs jumped to 500 planes.

Lightplane output in 1951 totalled 2,300 compared with 3,400 in 1950.

Airframe floorspace in 1952 will total 60,000,000 square feet for 12 major manufacturers, roughly the same as the wartime peak. Additional facilities will still be required.

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Scheduled airlines will add an estimated 16 million seat-miles in 1952 as new equipment is placed in service. This is equivalent to moving 16,000 persons 1,000 miles each day only with new aircraft to be delivered in one year.

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U. S. domestic and international airline safety record for 1951 was 1.3 fatalities per 100 million passenger-miles, same as 1950. Domestic fatality rate went from 1.2 in 1950 to 1.4 in 1951, while international dropped from 2.1 to 1.2.

•

Emergency spare parts requirements of the scheduled and large irregular air carriers will be relieved by a cooperative effort between the U. S. Air Force, Navy, CAA and the airlines. CAA, acting as claimant agency for the airlines in much the same manner as presently used for controlled materials, will screen all requests to determine their emergency nature. Air Force will handle actual sale of these short items to the airlines, although some equipment will come from Navy stock.

Program is inadequate, responsible airline officials note. The program was set in motion with a "trial run" of three short items on Dec. 28. One of these requests was for six Pratt & Whitney R-4360 engines, shortage of which threatens to ground one airline's Stratocruisers. USAF would not act on this request as part of the new program, and notified carrier that the provisions were for aircraft and engine parts, not engines as requested.

Temporary nature of the arrangement was stressed by R. L. Gilpatric, Under Secretary of the Air Force who noted the USAF "is prepared to undertake to establish a procedure on a temporary basis to assist them to obtain spare parts on a demonstrated need basis in emergency, although, of course, we are not in a position to provide a continuing support supply system for the airlines."

Los Angeles-Mexico City route was main unsettled point in U. S.-Mexico civil aviation conferences, which were suspended before Christmas without agreement.

Mexicans wanted exclusive non-stop rights on the route for Cia. Mexicana de Aviacion, and insisted that U. S. line stop at La Paz on all flights. U. S. insisted that carriers of both companies should have non-stop rights, a point explicit in all bilateral agreements this country enters.

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In first action of its kind, CAB has suspended a non-scheduled carrier's letter of registration for "gross mistreatment of passengers." Suspension of the line, New England Air Express, will continue until company shows "that the rights of the public will be protected in its operations."

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CAB has made it clear to Senate Small Business Committee that it still doesn't believe non-scheduled airlines' operating authority should be expanded pending outcome of the comprehensive non-sked investigation now underway.

In a letter to Sen. John J. Sparkman (D., Ala.), chairman of the committee, CAB Chairman Donald W. Nyrop emphasized that until decision to "expand or contract" the non-skeds is reached in the investigation, the status quo should be maintained. Sparkman had urged that non-skeds be permitted to "live and grow" until completion of CAB's "long-term study."

Nyrop defended CAB's right to take enforcement actions against those lines operating in excess of their legal authorizations, stating that CAB would be remiss in its duties if it didn't.

He also defended transcontinental coach decision, which denied applications of four non-skeds. He pointed out that majority didn't decide against further coach service but against additional carriers operating unlimited coach services over the major high density route segments.

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The Russians are reported to have a new twin-jet fighter with swept wing and tail surfaces. The craft bears a superficial resemblance to the German Messerschmitt Me 262 HG III project and uses two German-designed M-012 axial flow turbojets, each developing about 6,600 pounds of thrust, buried in the wing roots.

•

To overcome air traffic delays at understaffed airways centers and control towers, the Air Force has agreed to lend 73 CAA air traffic controllers now on active duty back to the agency. They will work at their old traffic control positions in uniform at military pay.

Situation is causing some morale problems because of the difference in military and Civil Service pay for the same job. Most of the reservists are officers ranging from lieutenant to major and they earn from $5,600 to $8,000 a year. Civil Service salaries for the posts range from $4,204 to $5,750.

•

Six West Coast aircraft manufacturers have been cleared of charges of hoarding aluminum. Investigators for the Senate Small Business Committee, after checking the inventories of Consolidated Vultee, Boeing, Douglas, Lockheed, North American and Northrop, reported there was "little evidence" of excessive supplies.

Allegations that the aircraft industry had more than legal inventories were made by representatives of 14,000 small aluminum fabricators last October. Senate Small Business Committee sleuths reported, however, that at present "no significant amount of aluminum could safely be diverted to civilian use from the stocks of the aircraft manufacturers investigated."

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Four alternate defense budgets have been submitted to President Truman by military officials and the smallest one, $45-$50 billion, is the one most likely to be approved.

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No final decision has yet been made on a proposal by the Office of Defense Mobilization to "freeze" several military plane types to increase production and make any needed changes at modification centers. Indications are, however, that the Pentagon will okay a freeze on two jet fighters.

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MANUFACTURERS

More aircraft companies are turning to Europe to obtain early delivery of machine tools. Included are Curtiss-Wright, United Aircraft, General Electric (which has ordered 300 and has set up a pool to allot them to subcontractors), Ryan, AiResearch, Hughes and others. Douglas and Lockheed have started preliminary surveys of the foreign tool market but are worried about spare parts.

Air Materiel Command awarded more than $27 million in prime contracts to small business in the last five months. Advertised contracts totalling $5,168,512 were granted to 115 small companies while 131 other small firms won negotiated contracts worth $22,691,636.

RFC granted Specialties, Inc., Syosset, N. Y., aircraft equipment maker, a loan of $4,669,730 under the Defense Production Act. Schweizer Aircraft Corp. of Elmira, N. Y., obtained a $75,000 loan under the same act while Helio Aircraft Corp., Norwood, Mass., was approved for a $45,000 loan under the RFC act.

Beech Aircraft Corp. has received contract from Canadian government for modernization of 83 C18S twin-engined Beechcrafts for the Royal Canadian Air Force. Program will be carried out in Canada at the plant of MacDonald Brothers Aircraft Ltd., Winnipeg, with Beech personnel supervising the work. Job consists of bringing the 10-year old planes up to latest D18S configuration. Beech is carrying on similar modernization programs for U. S. Air Force and Navy.

Douglas Aircraft Co. has named J. R. McGowan, formerly assistant chief project engineer on the DC-6 series aircraft, as chief project engineer on the DC-6 and the newly-announced DC-7 project. J. J. Dysart, special project engineer with Douglas and previously with Pan American World Airways' engineering department, has been named assistant chief of the group.

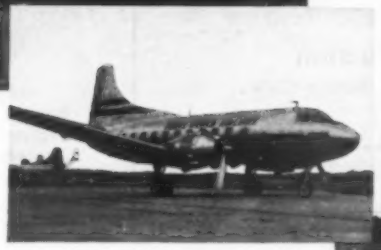
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Close-up view of Single Disc Brakes and Goodyear wheels on main gear of Martin 4-0-4.

Wheels and Brakes by GOODYEAR standard on Martin 4-0-4

GOODYEAR AVIATION PRODUCTS





Insets show TWA and Eastern Air Lines 4-0-4's now in service.

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Cover Photo

A veteran in airline financial affairs, Braniff International Airways' Claude G. Adams has been elected president of the Airline Finance and Accounting Conference for the second time. Adams, 58, is secretary-treasurer of Braniff, a director of the company and a member of its executive committee. An 18-year man in the industry, he was one of those responsible for creation of the Conference, a division of the Air Transport Association, through which the airlines pool their problems and answers and work out standard procedures. After working as a school teacher, serving in the Navy, and working as an accountant, he joined T. E. Braniff in 1933 as auditor for his many business interests, including the airline. At that time, he recalls, the carrier had 30 employes and bookkeeping consisted largely of juggling figures to meet bills and payrolls. Two years later he was elected secretary-treasurer and a director, positions he still holds.

other publications

American Aviation Daily (including International Aviation): Published daily except Saturdays, Sundays and holidays. Subscriptions: $16 one month; $180 one year. Daniel S. Wentz II, managing editor.

American Aviation Directory: Published twice a year, spring and fall. Single copy, $7.50. Marion E. Grambow, managing editor.

Official Airline Guide: Monthly publication of airline schedules and fares. Subscriptions: U. S. A. and countries belonging to the Pan American Postal Union, including Spain and the Philippines, $9.00 one year, Canada, $9.50. All other countries, $11.00. Published from editorial offices at 139 North Clark St., Chicago 2, Ill. Central 6-5804. C. N. Johnson, managing editor.

American Aviation Traffic News (incorporating Air Tariff Reports): Published daily except Saturdays, Sundays and holidays. Subscriptions: $150 a year. Preble Staver, managing editor.

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American Aviation is published every Monday by American Aviation Publications Inc., Washington, D. C. Printed at the Telegraph Press, Harrisburg, Pa. Subscription rates for United States, Canada, Mexico, Central and South American countries—$5.00 for 1 year; $8.00 for 2 years; $10.00 for 3 years. All other countries—$7.00 for 1 year; $12.00 for 2 years. Entered as Second-Class matter in Washington, D. C., and Harrisburg, Pa.

Publishing Corporation: American Aviation Publications, Inc., Wayne W. Parrish president; Albert H. Stackpole, Eric Bramley, vice presidents; E. J. Stackpole, Jr. secretary-treasurer; Leonard Eiserer, assistant secretary-treasurer.

West Coast Office: Park Central Building, 412 West Sixth St., Los Angeles 14, Calif. Trinity 7997. Fred S. Hunter, manager.

Chicago Office: 139 North Clark St., Chicago 2, Ill. State 2-2154. Bruce L. McGregor, regional advertising manager.

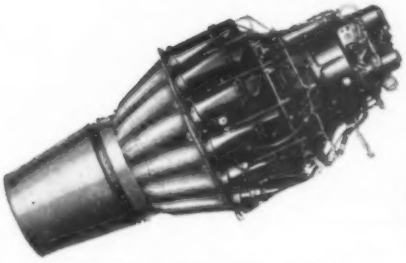
Foreign Advertising Representative: United Kingdom—Pearl, Cooper Ltd., 2-3 Norfolk St., Strand, London, W. C. 2. Tel. Temple Bar 8111/2.

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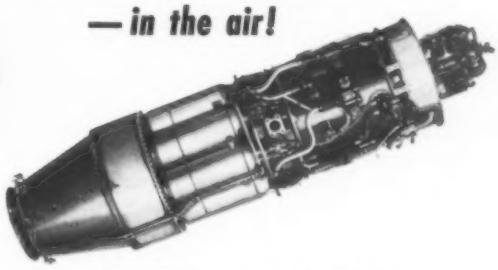
First 1,000 hour jets

- The only jet engines which our armed services have actually operated 1,000 hours without a major overhaul are an Allison J33 and an Allison J35. They were finally removed only for routine inspection.
- One other Allison J33 has passed 900 hours and is fast approaching the 1,000-hour mark. Another J33 has exceeded 750 hours in combat.
- Many Allison jet engines have exceeded 500 hours without ever being removed from the aircraft.
- Allison jet engines were first to accumulate a total of more than 1,200,000 hours in the air.
- More than 700,000 hours were piled up during the last year in military service from Korea to Germany.
- Allison jet engines have always set the pace for allowable hours before overhaul.

No other jet engine in the world can equal this record of experience — where it counts most — in the air!



Allison J33 engine powering Lockheed Shooting Stars, F-94's and Grumman Panthers.



Allison J35 engine powering Republic Thunderjets and Northrop Scorpions.

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Editorial

More . . . Faster . . . Cheaper

IT is going to be a good year for air transportation and for the traveling public.

More people will fly faster and at lower fares than ever before in history.

It is a tremendous tribute to the air transport industry that in this coming year of great expansion of equipment and seat-mile capacity, fares will be lower for an increasing number of travelers. Compared to almost any other product or service that you can think of, air transport offers the best bargain in the country. A 3½c per mile coach fare, lowest to be offered for 1952, is equal to 1.9c per mile based on the 1935-39 consumer price index.

The certificated scheduled carriers are at last ready to compete domestically with the non-skeds on a price basis and at the same time continue to maintain all of the elements of a sound air transportation system.

Air coach fares on the North Atlantic starting May 1 should prove to be a bonanza. While we still have our own reservations about launching a new era of low fares at the beginning of what would be a capacity season anyway, the IATA carriers agreed to make the start and record-making over-ocean traffic for 1952 is assured.

Some of the sobsisters and bleeding hearts who have berated airlines for failing to enter the low fare coach business earlier might well ponder the recent revelation that non-scheduled carriers owe at least a million dollars in transportation taxes to the federal government. There are many ways to make a fast buck and failure to pay taxes is one of them. But the certificated scheduled airlines are business institutions and are unable to take advantage of such shortcuts as avoiding payment of taxes.

The vast re-equipment program of the scheduled carriers which has cost high in the millions and has taken a great deal of engineering and preparatory time, will begin to pay off in 1952. It will pay off to the customers. The advantages which the non-skeds have had in using surplus equipment for long-haul skimming of the cream will begin to disappear as more trunk carriers add more and faster low-fare coach trips.

This is the year when postwar planning finally takes form. It will be good for everybody.

Raising the Standards

OUR attention was caught last month by a speech made by Walter Betsworth, president of the American Association of Airport Executives, before the new California group of airport executives at Santa Monica on December 6.

Mr. Betsworth, who is manager of the Waterloo (Iowa) Municipal Airport, pointed out that managing an airport has grown into a profession. The days of meetings in dirty hangars, poker playing and hard drinking as the symbols of airport management have long since passed. Managing airports has become a dignified business requiring real business ability.

A good airport manager, he points out, must be a good businessman. He must have some knowledge of business law and be able to draw and negotiate a lease or an agreement. He must have a fundamental knowledge of engineering. He must be able to read blueprints and interpret specifications. He must be a good public relations man. Sometimes he must even be a good farmer, for agricultural income is often the best single source of revenue. He must know the essentials of bookkeeping and have a sufficiently good personality to get along with the public. And, of course, he must have a good knowledge of aviation and government regulations.

Perhaps the main thesis Mr. Betsworth put over in his talk is that airport management has attained professional stature; all airport managers have not.

Looking back over the years one can see how right Mr. Betsworth is in discussing progress. There has been a great deal of it. Airports today represent investments very high in the hundreds of millions. They have become big business and they need business management. Men like Walter Betsworth and the other leaders of AAAE have contributed a lot to raising the stature of management.

Local Services Improve

WHAT with the final air carrier reports to the CAB lagging behind as they do, the healthy improvement of local service airlines during the past summer has only recently come to light.

July, 1951, can be marked as a milestone in local service history as being the first month when passenger revenues exceeded mail pay for the entire group. Mail pay was $1,426,865. Passenger revenues totaled $1,534,736. Passenger business was up 55% over the year before.

In August the 17 local lines did even better. Mail revenue was $1,399,849. Passenger revenues were $1,676,857. The following local carriers reported higher passenger revenues that month than mail pay: All-American, Piedmont, Pioneer, Robinson, Southwest, West Coast, and Wisconsin Central. These are encouraging signs toward greater self-sufficiency.

Fine Choice

APPOINTMENT of E. C. R. Ljungberg as secretary general of the council of the International Civil Aviation Organization at Montreal is good news for world civil aviation. As the civil aviation director of Sweden for many years, Ljungberg has become known around the globe as an able and respected man. He is well conversant with the latest developments in civil aviation. He has acquitted himself well in Sweden and it is a very sound bet that he will acquit himself well at ICAO.

WAYNE W. PARRISH



Messenger of Mercy—Carrying doctors and serum, a lone Sikorsky R-5 helicopter of the Air Rescue Service is credited with checking a yellow fever epidemic which was threatening to sweep Costa Rica last fall.

Operating from a makeshift base in the northern part of this Central American republic, the helicopter covered 6,000 square miles of remote territory in a 13-day period in good weather and bad.

During 42 landings, many of them in small tropical clearings, doctors were able to inoculate 978 natives—and though 31 had perished before the helicopter flew in with medical aid, not a single death from the fever was recorded after its arrival.

Other peacetime missions performed in recent months by Sikorsky helicopters include the evacuation of 140 flood victims in Argentina . . . food air-drops in the Kansas City flood region . . . and help for flooded-out inhabitants of the Po River Valley in Italy.

SIKORSKY AIRCRAFT

BRIDGEPORT, CONNECTICUT

ONE OF THE FOUR DIVISIONS OF UNITED AIRCRAFT CORPORATION

Letters

Letters should be addressed to The Editor, American Aviation Magazine, 1025 Vermont Ave., N.W., Washington 5, D. C. Anonymous letters will not be printed, but names will be withheld upon request.

False Impression?

To the Editor:

The article appearing on page 16 of your issue of Dec. 10 is wholly inaccurate and creates a false impression and possible misunderstanding.

The Comet project in which we were interested was not a "speculative deal," as stated in your article. Admittedly, it is inconsistent with the views of the portion of the industry who periodically claim that the non-scheduled airlines contribute nothing towards aviation progress, and make no effort to secure new equipment.

The proposed acquisition of the Comets came as a result of extensive studies to determine the economic feasibility of their operation.

The principal inaccuracy in your story concerns the accusation that we circulated copies of correspondence in an effort to place a blame on the Civil Aeronautics Administration for the failure of the project. Good reporting would have discovered that the project was not consummated largely due to a number of factors beyond the control of either the Civil Aeronautics Administration or ourselves.

Certainly, at no time have we attempted to blame the Civil Aeronautics Administration for their inability to grant an unrestricted operating permit for the Comet. The correspondence and story of the Comet project were released only after it became evident that there would be no opportunity to acquire Comets within the next few years, as the remaining Series I models available for purchase had been sold to Air France.

We hoped that by the release of the story, we could stimulate interest, particularly in Congress, towards the support of a prototype bill, in order to accelerate the construction of jet transports in this country.

Contrary to the erroneous implications in your story, the Civil Aeronautics Administration—particularly Mr. Horne—gave us every assistance in our project. In the exchange of correspondence between ourselves and de Havilland, they indicated that the exhaustive test data on the Comet, and engineering and design studies, would be made available to the Civil Aeronautics Administration for study.

The Civil Aeronautics Administration indicated to us that they would be willing to send one or more engineers to England to study the test data compiled by the British Air Registration Board, and to accept such data as had been completed and authenticated. Quite obviously, the Civil Aeronautics Administration could not state, prior to the examination of the nature and extent of the tests completed by the British Air Registration Board, whether additional tests would be required prior to certification.

The fact of the matter is, then, that the Civil Aeronautics Administration did offer considerable cooperation. This cooperation extended to their willingness to permit the utilization of the Comet in cargo ope rations.

This company, being non-subsidized, was not in a position to accept this proposal, inasmuch as the Comet cannot operate economically in the carriage of cargo. Neither, with our limited resources, could we afford to gamble the time and expense for operational tests and the cost of possible modifications, which possibly may have been required for the certification of the Comet by the Civil Aeronautics Administration.

Presumably, you could blame the Civil Aeronautics Administration for our failure to acquire the aircraft because of their inability to grant full certification without compliance with their procedures; but such blame is purely one of your own making, as at no time have we intimated, suggested or felt that the Civil Aeronautics Administration acted in any manner inconsistent with their obligations as a safety organization.

GEORGE W. TOMPKINS
President

Overseas National Airways
San Francisco, Calif.

(Mr. Tompkins states that the proposed Comet purchase was not speculative. CAA officials, commenting on their discussions with ONA regarding Comet certification, noted that the airline proposed some five widely different plans for utilizing the aircraft once they were obtained. These ranged from immediate lease to the government for prototype testing to leasing them to existing U. S. scheduled airlines. This falls within the narrowest interpretation of a "speculative" venture.

In personal correspondence between de Havilland and Mr. Tompkins, released for publication, the following appears:

"During all the time that has elapsed since the war, this country has been relying mainly on American manufacturers to supply their transport aircraft.

"The British Air Registration Board has accepted 'carte blanche' the CAA certification of American aircraft and . . . feel very strongly that they are an equally competent body to judge airworthiness of an aircraft . . . and that the American authorities should recognize their competence in the same way as we recognize theirs. Naturally the CAA will want to know more detail about the requirements for British jet transports, but we do feel the CAA could obtain these from our Air Registration Board and that they should be accepted as sound and reasonable."

This would appear to us, as it did to CAA, to be critical of CAA's certification requirements, particularly appearing in material specifically designed, as Mr. Tompkins notes it was, "to stimulate interest, particularly in Congress".

It is difficult to imagine that such criticism of CAA could possibly do the U. S. aviation industry any good when CAA, as claimant agency for prototype development and testing funds, goes before Congress for financial help in this important field.

—Ed.)

Batori Computer

To The Editor:

I am interested in receiving some information regarding the Batori Computer on which you carried an article in your November issue. Would you please forward this letter to the Batori Mfg. Co. that I may receive further information on this Computer.

RAY FISHER
Frontier Airlines
Denver 7, Colorado

To the Editor:

In your November 26th issue, you carried an article about the new Batori Computer. I have been unable to find the address of the Batori Company, if you could supply me with the address of this firm, it would be greatly appreciated as I would like to buy one.

GUY POPLIN
Atlanta, Ga.

To The Editor:

In the November 26th issue of AMERICAN AVIATION an article titled "In Flight" described a navigational computer invented by Batori.

I would appreciate the complete address of this firm so that I could contact them in regard to purchasing this computer.

MERRILL T. McKIBBEN
St. Cloud, Minn.

To The Editor:

. . . We would like to order one of these computers but unfortunately your article did not tell the address of the company.

We would appreciate it very much if you would please send us this address.

JOHN M. KLOCK
Abrams Aerial Survey Comporation
Lansing 1, Michigan

(This is a small cross-section of the inquiries received regarding the Batori Computer after a short note on it appeared in our Nov. 26th issue, AMERICAN AVIATION'S policy is to print complete names and addresses of companies producing or marketing new items of this nature. For others who may be interested but who have not had the opportunity to write, the address is:

Batori Computer Company, Inc.
527 Lexington Avenue
New York 17, New York.

—Ed.)

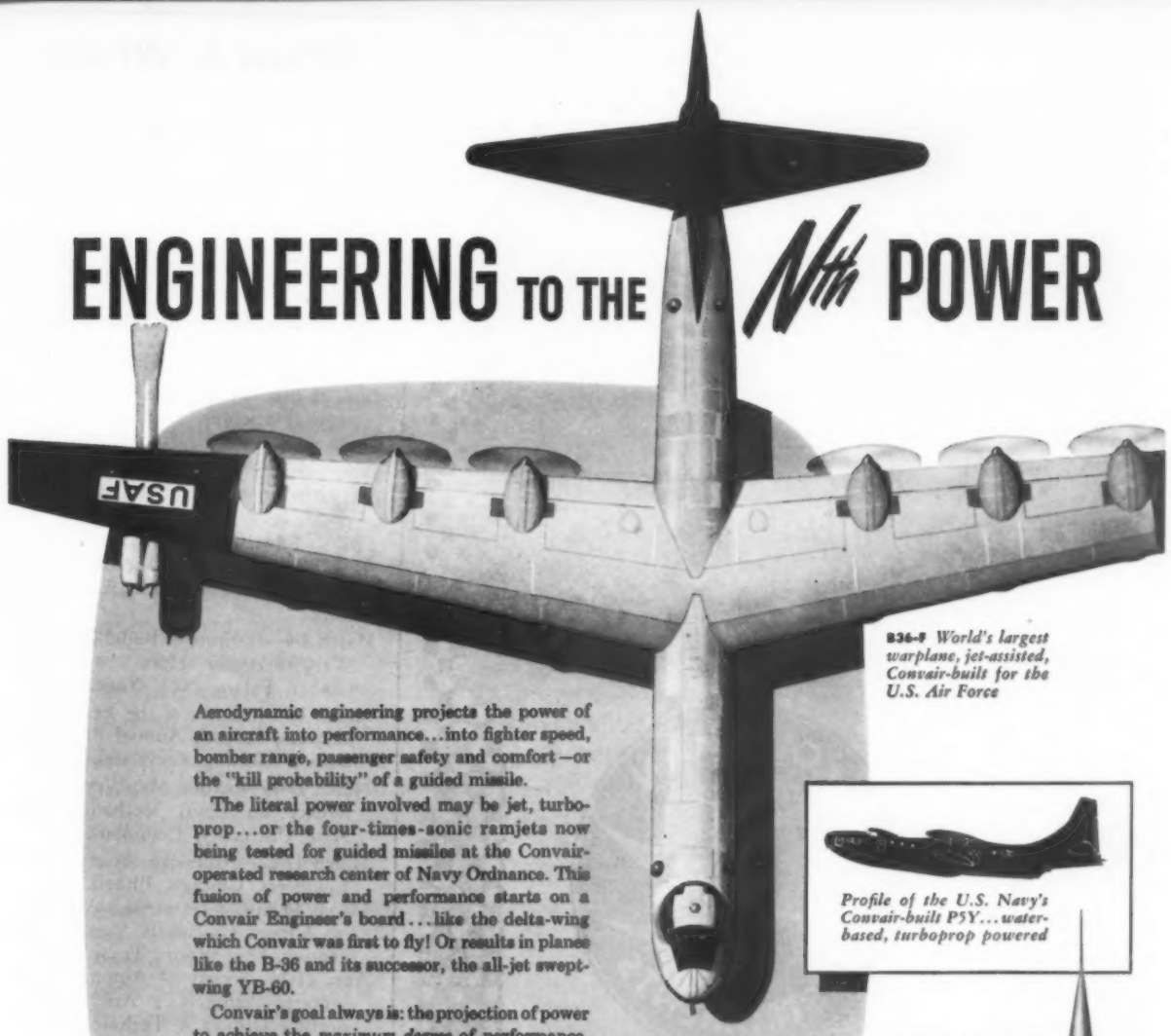
OBITUARY

L. B. Judd

Leon Beaty Judd, 50, comptroller and a director of Delta Air Lines, and one of its earliest employes, died Dec. 26 of a heart attack at Centre, Ala., while driving back to Atlanta from his mother's home in Mississippi.

Born Aug. 16, 1901, in Okalona, Miss., he was the third oldest Delta employe in point of service, having first joined the company in July, 1928.

ENGINEERING TO THE *Nth* POWER



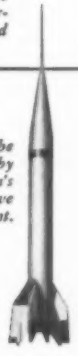
B36-P *World's largest warplane, jet-assisted, Convair-built for the U.S. Air Force*

Aerodynamic engineering projects the power of an aircraft into performance...into fighter speed, bomber range, passenger safety and comfort—or the "kill probability" of a guided missile.

The literal power involved may be jet, turboprop...or the four-times-sonic ramjets now being tested for guided missiles at the Convair-operated research center of Navy Ordnance. This fusion of power and performance starts on a Convair Engineer's board...like the delta-wing which Convair was first to fly! Or results in planes like the B-36 and its successor, the all-jet swept-wing YB-60.

Convair's goal always is: the projection of power to achieve the *maximum degree* of performance. The maximum, the Nth degree of air power... *the Nth Power!*

Profile of the U.S. Navy's Convair-built P5Y...water-based, turboprop powered



Guided missiles will be mass-produced by Convair in America's first exclusive missile plant.

IN THE AIR IT'S

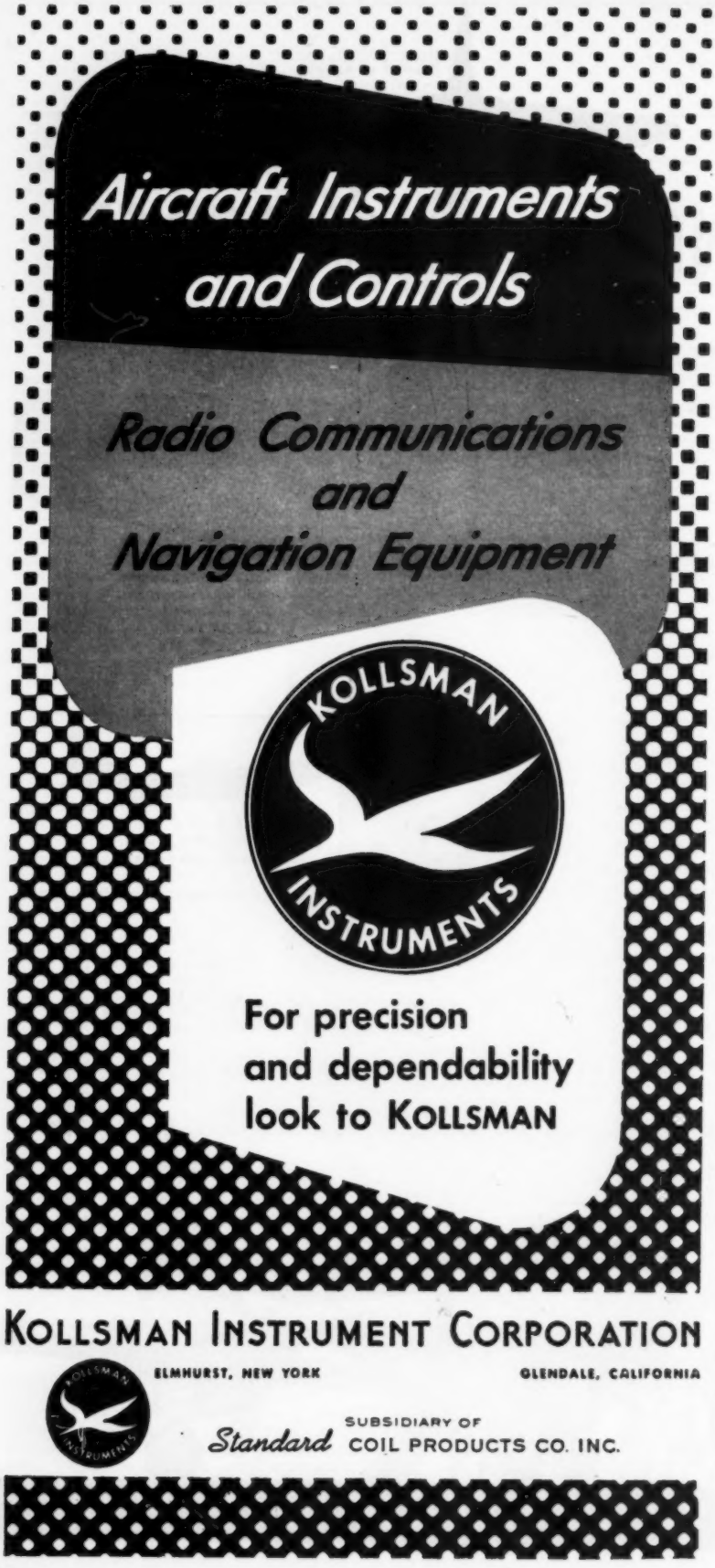
CONVAIR

SAN DIEGO, CALIF. • POMONA, CALIF. • FORT WORTH, TEXAS



Convair-Liner
unequalled for safety, preferred by passengers and pilots...more Convair-liners used by more airlines than any postwar plane!

CONSOLIDATED VULTEE AIRCRAFT CORPORATION



When & Where

Jan. 6-8—Annual Cessna Distributors Meeting, Allis Hotel, Wichita, Kansas.

Jan. 6-10—Armed Services Procurement Clinic, National Guard Armory, Minneapolis, Minn.

Jan. 14-18—Society of Automotive Engineers, Annual Meeting, Hotel Book-Cadillac, Detroit, Michigan.

Jan. 21-22—Fifth Annual Conference of National Aviation Organizations, Washington, D. C.

Jan. 28-Feb. 1—Institute of the Aeronautical Sciences, 20th Annual Meeting, Astor Hotel, New York.

Jan. 29-31—American Meteorological Society, National Meeting, Roosevelt Hotel, New York, N. Y.

Feb. 7-8—Instrument Society of America, New York Section, Power Plant Symposium, Statler Hotel, New York.

March 3-6—Institute of Radio Engineers, Waldorf-Astoria Hotel and Grand Central Palace, New York.

March 14—Institute of the Aeronautical Sciences, Seventh Annual Flight Propulsion Meeting, Cleveland, Ohio.

March 17-19—Second Mid-Western Conference on Fluid Mechanics, Ohio State University, Columbus.

March 17-22—American Society of Tool Engineers, Chicago, Illinois.

March 30-Apr. 3—American Association of Airport Executives, Annual Convention, Fort Worth, Texas.

Apr. 21-24—Society of Automotive Engineers, Aeronautic, Aircraft Engineering Display & Technical Air Review, Statler Hotel, New York.

May 8-9—Fifth Annual Wisconsin Aeronautics Conference, Green Bay, Wisconsin.

May 15-16—American Helicopter Association, 8th Annual Forum, Washington Hotel, Washington, D. C.

May 22-24—American Society for Quality Control, Sixth Annual Convention, Syracuse, N. Y.

June 1-6—Society of Automotive Engineers, Summer Meeting, Ambassador and Ritz-Carlton Hotels, Atlantic City, N. J.

June 9-21—International Organization for Standardization, Triennial Meeting, Columbia University, New York.

June 23-27—American Society for Testing Materials, 50th Anniversary Meeting, Statler and New Yorker Hotels, New York.

International

Jan. 22—ICAO, PEL, Fourth Session, Montreal, Canada.

Feb. 26—ICAO, Third European-Mediterranean Meeting, Paris, France.

Pick a Peck of "Peashooters"

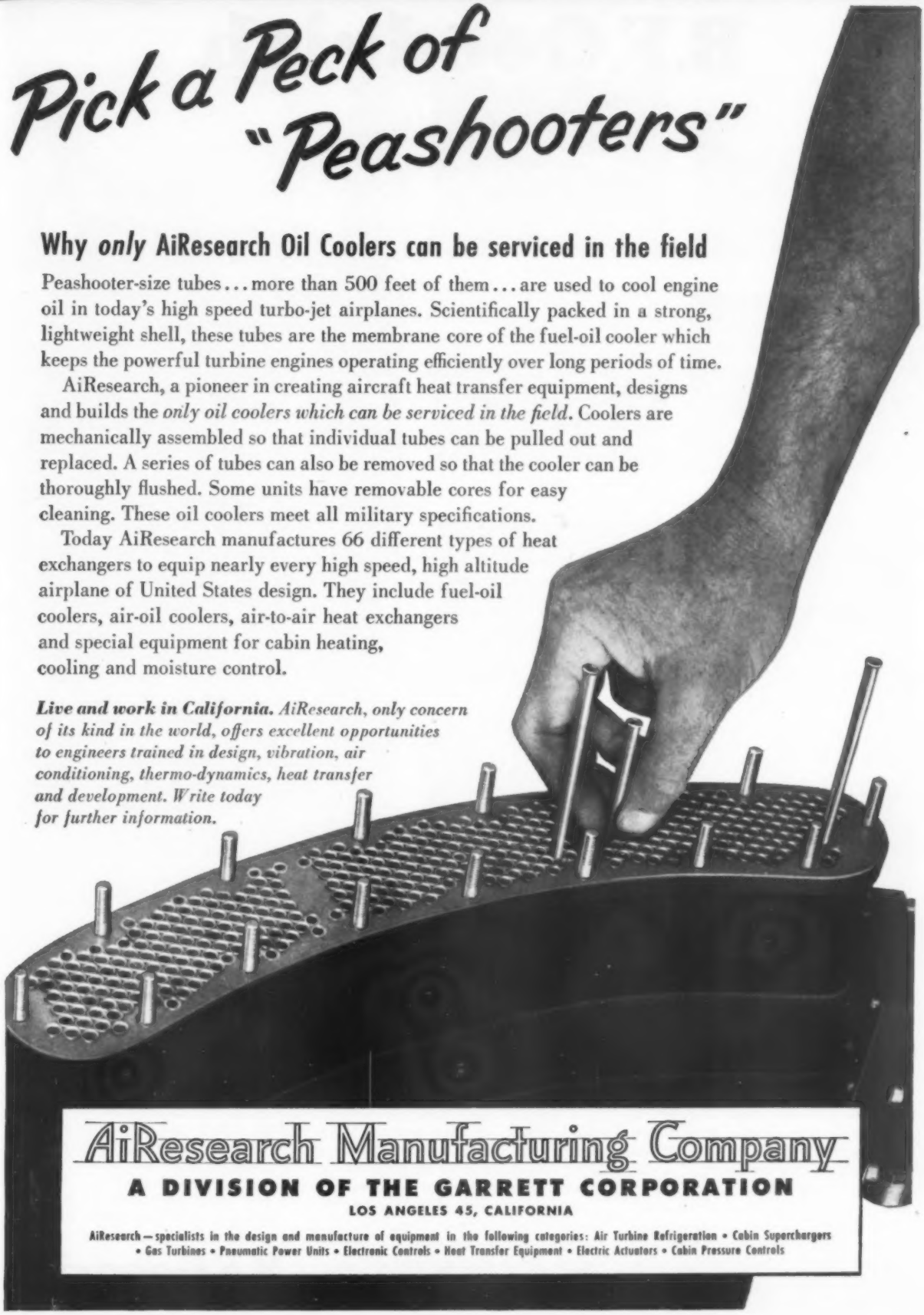
Why *only* AiResearch Oil Coolers can be serviced in the field

Peashooter-size tubes... more than 500 feet of them... are used to cool engine oil in today's high speed turbo-jet airplanes. Scientifically packed in a strong, lightweight shell, these tubes are the membrane core of the fuel-oil cooler which keeps the powerful turbine engines operating efficiently over long periods of time.

AiResearch, a pioneer in creating aircraft heat transfer equipment, designs and builds the *only oil coolers which can be serviced in the field.* Coolers are mechanically assembled so that individual tubes can be pulled out and replaced. A series of tubes can also be removed so that the cooler can be thoroughly flushed. Some units have removable cores for easy cleaning. These oil coolers meet all military specifications.

Today AiResearch manufactures 66 different types of heat exchangers to equip nearly every high speed, high altitude airplane of United States design. They include fuel-oil coolers, air-oil coolers, air-to-air heat exchangers and special equipment for cabin heating, cooling and moisture control.

Live and work in California. *AiResearch, only concern of its kind in the world, offers excellent opportunities to engineers trained in design, vibration, air conditioning, thermo-dynamics, heat transfer and development. Write today for further information.*



AiResearch Manufacturing Company

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AiResearch—specialists in the design and manufacture of equipment in the following categories: Air Turbine Refrigeration • Cabin Superchargers • Gas Turbines • Pneumatic Power Units • Electronic Controls • Heat Transfer Equipment • Electric Actuators • Cabin Pressure Controls

B.F.Goodrich



Braniff



Capital



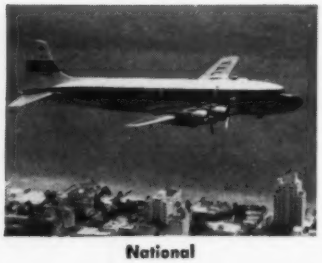
Continental



Empire



Mid Continent



National



Trans-Texas



West Coast



In tests by 8 airlines, new dimpled tire outwears all others

EIGHT AIRLINES who have used a new B. F. Goodrich tire in actual service have now reported it outwears all other tires they have used.

It has a new kind of tread design with round, dimple-like indentations in the rubber. The dimple indentations provide better distribution of the tire load and reduce exposure to tread cutting. The tread design is a complete departure from conventional ribbed treads.

A typical report from an airline which tested the new tire on DC-3 equipment: "We removed the tires after 400 hours, 1200 landings. In the process of recapping, we discovered that there was enough rubber left for about 100 hours more, a total of 1500 landings. These tires have given us longer service than any we have used."

The new tires have now been adopted by all eight airlines shown above.

Production of the new tire in seven sizes is now underway at B. F. Goodrich. The new, longer wearing B. F. Goodrich tire is the latest "first" in aviation tires from B. F. Goodrich, leader in rubber research and engineering. *The B. F. Goodrich Company, Aeronautical Division, Akron, Ohio.*

B.F.Goodrich

FIRST IN RUBBER

ESTABLISHED JUNE 1, 1937

American Aviation

VOLUME 15 NUMBER 32

25 Douglas DC-7's Ordered by American

New plane, grossing 116,800 lbs., will cruise at 363 mph with Wright compound engines.

By William D. Perreault

AMERICAN AIRLINES has contracted with Douglas Aircraft Company for 25 Douglas DC-7 airplanes, a new version of the Douglas DC-6B powered by four Wright compounded R-3350 Turbo Cyclone engines rated at 3250 horsepower each. The new-plane development project represents another American-Douglas effort in a cooperative relationship which dates back to the early 1930's, when AA's twin-engined transport specification brought from Douglas the now-famed DC-3.

The DC-7 will cruise at 363 mph, gross at 116,800 lbs. and carry 60 passengers in standard seating or 95 in coach service. The fuselage has been lengthened by forty inches over the DC-6B.

The $40 million contract, reflecting a purchase price of approximately $1,590,000 each, calls for initial delivery of the first DC-7 in late 1953, with first scheduled use of the plane in January, 1954.

Immediate effect of the new plane announcement was to raise industry speculation that many of the other airlines now having DC-6A's and B's on order might switch over to the bigger, faster and more economical DC-7. There are over 100 DC-6-type planes on order, about evenly divided between 1952 and 1953 deliveries.

Order Revised

American's order for DC-7's is largely a change in its earlier order for 24 DC-6B's and six DC-6A's, announced Sept. 19, 1951. The new contract covers a total of 11 DC-6A's and B's plus the 25 DC-7's.

Wright Aeronautical Corp. officials have stated that they can readily meet the R-3350 engine requirements of the American Airlines order and expect to be able to meet other commercial needs as they develop if other airlines want to make the change to DC-7's. The compound version of the R-3350, rated at 3500 hp. in military use, is in production for the U. S. Navy for use in the Lockheed P2V-4 and Martin P5M-1 and for the U. S. Air Force's Fairchild C-119H. It will also power the Lockheed L-1049C Super Constellations.

Earlier reports (American Aviation, Nov. 5) indicated that both American and Pan American were contemplating the purchase of Wright powered DC-6B's. No comments were forthcoming from PAA. Actually, American Airlines handled all publicity relating to the new airplane and orders and, West Coast sources say, American and Douglas differ on the gross weight and performance figures which they will quote for the DC-7.

While American's release states that the gross weight will be 116,800 lbs., another figure of 116,372 lbs. has been circulated. Up to 122,000 lbs. is said to be under consideration for an AA long-range version of the DC-7.

Less Fuel

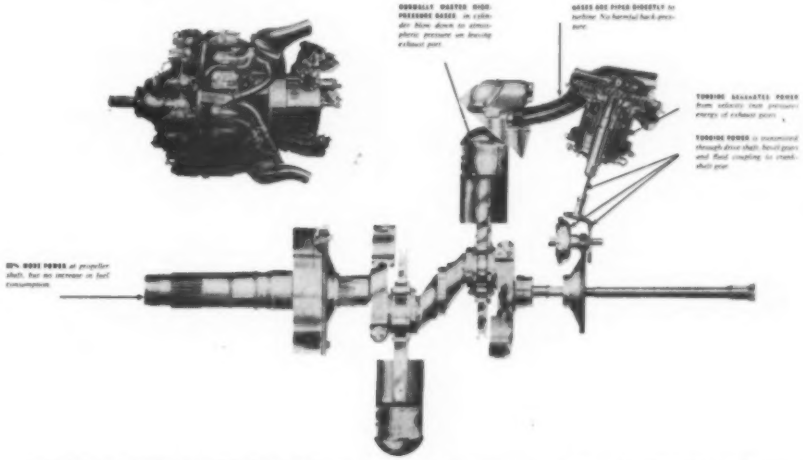
With the exception of the Navy's Pratt & Whitney T-34 turboprop-powered Constellation, development of which was recently announced, the DC-7 with a major reduction in fuel consumption, cuts well into the speed range of the turboprop airplanes now flying either in construction or programmed. Fuel consumption of the Turbo Compound is .39 pounds per brake horsepower, virtually half that of present turboprop engines and some 20% below that of conventional piston engines.

Increased speed of the DC-7 will cut one hour off the New York-Chicago-Los Angeles flight time, providing for eight hours and 55 minutes flight time on this one-stop route.

Real center of attraction in the DC-7, as in the Super Constellation, is the Wright Turbo Compound engine which provides the 3250 hp. with lower fuel consumption. The specific model going in the DC-7 is the R-3350 972 TC18DA1, the equivalent of the USAF's and Navy's -34 engine. Eventually this engine may provide the 3500 rated horsepower of the Navy's -30WA or USAF's -85 engine model.

'Blow-Down' Principle

The Turbo Compound develops this extra horsepower at lower fuel consumption by harnessing the exhaust gases. In contrast with the piston engine, in which cycling valve action results in loss of power through the exhaust, the compound engine harnesses this power by routing the exhaust gases through three "blow-down" turbines, which in turn provide a minimum amount of back pressure, and transmit the resulting torque back into the crankshaft via a fluid coupling.



WRIGHT'S TURBO COMPOUND engine, which powers the Douglas DC-7, is shown in this skeleton view in which the mechanical arrangement of the compounding "blow down" turbine can be seen. Exhaust gases drive three turbines, which act like water wheels, generating torque which is transmitted to the crankshaft through special couplings. Additional power is obtained with no increase in fuel consumption.



Super Connie Backlog Tops $250 Million

Orders for Lockheed's newly certificated L-1049's now total 75; Eastern already operating its first.

LOCKHEED Aircraft Corp., finishing 1951 with certification of the L-1049 Super Constellation at performance well above guaranteed figures, delivered the first Super Connie to Eastern Air Lines and announced that Seaboard and Western Airlines has been added to the growing list of L-1049 customers.

Seaboard and Western's order for five Super Connies, the first of the order for all-cargo L-1049B's, brings to 75 the total number of the enlarged Constellations on order by the commercial airlines. This represents a sizable portion of Lockheed's reported Constellation backlog in excess of $250,000,000. Trans World Airlines has an option on 30 additional planes.

Orders to date include:

Eastern Air Lines	30
Trans World Airlines	10
KLM, Royal Dutch Airlines	9
Pakistan International Airline	3
Air France	10
Trans Canada Airlines	5
Qantas Empire Airways	3
Seaboard & Western Airlines	5

Forty-six of the 75 Super Constellations on order by the airlines are L-1049C models, the 130,000-lb. gross weight version powered by four Wright Turbo Compound R-3350 engines, each rated at 3250 brake horsepower. Fourteen of EAL's 1049's and all 10 of TWA's are regular Super Constellations powered by the 2700-hp. R-3350's. S&W's are the first of the L-1049B's to be ordered, the cargo version with an average available payload of 38,600 lbs. on domestic flights and 36,600 lbs. on trans-Atlantic flights.

Although no figures on military orders for the Super Constellation have been released, Lockheed has indicated that about $150 million of the Constellation backlog is for the military.

Super-Connie Specifications

Length	113 ft.
Wingspread	123 ft. 7 in.
Fuselage volume	5,000 cu. ft.
Maximum takeoff weight (lbs.)	120,000
Maximum landing weight (lbs.)	98,500
Maximum zero fuel weight (lbs.)	93,500
Engines (Wright)	956C18CA1
Takeoff power—BHP/eng.	2,700
Maximum cruise power—BHP eng.	
Low blower	1,600
High blower	1,500
Fuel Capacity—U.S. gallons	5,820

Speeds	**120,000 lbs.**	**98,500 lbs.**
Maximum at critical altitude (rated power)	341	355
Cruising at critical altitude (maximum cruise power)	288	327
Cruising at 10,000 ft. with maximum cruise power	293	307
Cruising at 20,000 ft. with maximum cruise power	288	324
Takeoff and Landing (Sea Level)		
CAA takeoff airport at sea level (ft.)	6,137*	3,300*
Distance to stop from 50 feet-altitude (ft.)	.....	3,330
CAA landing airport length at sea level (ft.)	.....	5,550
Rate of Climb		
(Normal rated power, hot-day cowl flap setting)		
Maximum at sea level with		
4 engines	1,220	1,780
3 engines	630	970
Ceilings—		
(Normal rated power)		
Service with 4 engines	23,200	28,700
*Usable with 3 engines	18,600	23,300
*Usable with 2 engines	.....	9,100

* Without auto feathering, without thrust reverse.

*Usable ceiling where rate of climb is 50 ft./min.

BEA Reveals Specs for New Helicopter

British airline hands U.K. industry detailed requirements for multi-engined 30-passenger craft.

A DETAILED specification for a multi-engined commercial passenger helicopter has been submitted to the British aircraft manufacturing industry by British European Airways with the hope that a number of sound designs might be built around the specification for prototype testing. The BEA-proposed helicopter is planned as a five-year project, utilizing every ounce of existing design knowledge to assure the largest possible payload.

Representative of the high performance expected of the helicopter is the initial requirement that it carry 30 passengers over 100 nautical miles (115 statute miles) and be capable of expansion in future years to handle up to 45 passengers over 200 nautical miles. These passenger loads are equivalent to 7,000- and 10,000-lb. payloads respectively on the 100 and 200 nautical mile segments.

British European Airways' ideas on the subject of commercial helicopters are well founded. They are based on experimental and scheduled passenger-carrying helicopter service dating back to July 1947 when BEA formed an experimental helicopter unit. Its scheduled passenger helicopter services, which started between Liverpool and Cardiff on June 1, 1950, are in part supported by the government as a developmental project.

Single-Engine Operation

Prominent in the BEA specification for a multi-engined helicopter is the requirement for single-engine performance. With one engine out, a minimum rate of climb of 200 feet per minute to 5,000 feet is specified. With both engines inoperative, total landing distance over a 100-foot obstacle must not exceed 150 yards in still air.

Safety features include a requirement for deicing and anti-icing of powerplants, aerodynamic lifting and control surfaces and cockpit windows for the most severe icing conditions in the United Kingdom at altitudes to 7,000 feet for as long as two hours; provision for clear pilot view of the heliport during landing in all angles of approach path up to 50 degrees to the horizontal and handling characteristics that will reduce pilot fatigue, particularly in night and instrument flight operations.

Normal cruising speed of the BEA "large helicopter" would be 150 miles per hour. Flying at 2,000 feet altitude in the U. K., BEA studies indicate, headwinds of 30 knots (35 mph) can be expected on 1% to 2% of all flights. Increasing cruising air speed from 86 mph to 144 mph would halve the flight time in this much wind.

Technically, BEA describes the operational site from which the proposed helicopter must be able to operate as "An area of ground 400 feet in diameter with surrounding obstacles within a conical obstruction surface, the generators of which make a gradient of 1 vertical to 2 horizontal, and which intersect a circle 300 feet in diameter centrally disposed on the site." Takeoff requirements are based on operation in cross-winds of no greater velocity than three knots at 30 degrees to the runway, an area 400 by 200 ft.

Engine Unspecified

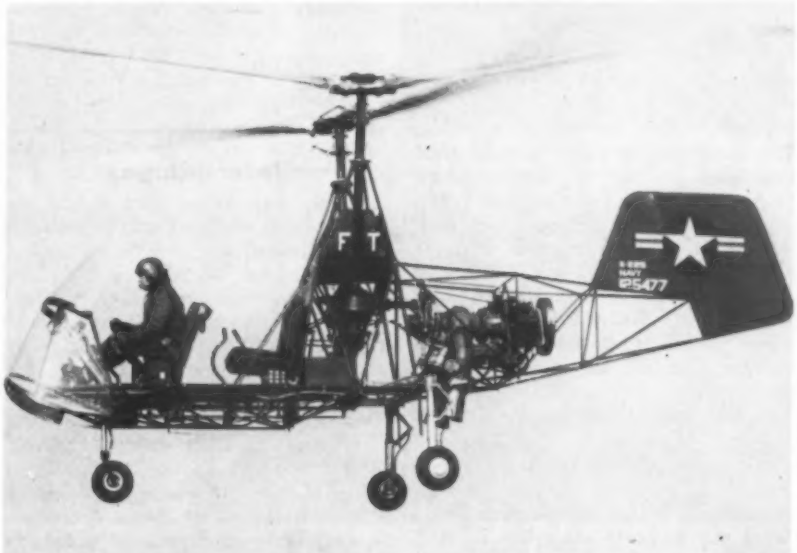
No specific choice of powerplants is contained in the BEA proposal. In setting up operating cost data, the specification notes that these should be based on not less than 120 knots (138 mph) or 90% of the design speed operating piston powerplants at maximum weak mixture power or 50% of METO power. With turbine engines 50% of maximum power output should be used. Other parameters for cost figures include use of 95% of the gross weight and cruising at 2,000 feet altitude. Cost figures requested are based on three levels of utilization: 1500 hours, 2,000 hours and 2500 hours annually and a set of formulae (see table) is provided to compute direct costs.

Equipment requirements include engines with at least 500 hours approved overhaul time; dual bank and pitch, directional gyro, rate of climb and air speed indicators, each instrument within reasonable view of the other pilot. An approved unit to warn of engine failure plus provisions for an automatic pilot and radio altimeter will also be required. No vacuum or pneumatic operated systems will be permitted. Two landing lights, one with a broad and the other with a narrow beam adjustable in elevation while in flight will be sought.

Cargo provisions include provisions for simultaneous loading or unloading of passengers, baggage and freight with doors on the left side. Center of gravity limits of the helicopter making indiscriminate loading of cargo possible.

Five-Minute Refueling

Other features of the BEA-proposed helicopter: Single point pressure refueling providing for complete refueling within five minutes; a simple quick acting rotor brake; a folding rotor design requiring no more than five minutes for two men; rotors not requiring blade props while the plane is parked; cabin heating without the use of independent combustion heaters, power transmission components capable of at least 100 hours between removals, and provision of a readily removable pantry.



FIRST IN-FLIGHT VIEW of Navy's gas turbine-powered helicopter, the Kaman-developed experimental K-225. Plane gets its power from a Boeing T-50 turbine, which uses the velocity of exhaust gases to turn the rotor blades.

Important Decisions Face CAB in 1952

Chief aims are fewer carriers, more service for more people at lower fares and minimum of subsidy.

By WILLIAM V. HENZEY

THE momentum gained by the Civil Aeronautics Board during the last half of 1951 will carry over into the new year and from all indications will increase substantially before a leveling-off period is reached.

Major policy moves in 1951 involving expanded coach services, separation of subsidy and service elements of mail pay, mergers, interchanges and non-scheduled airlines were of the seed-sowing variety designed to produce many constructive results in 1952.

In general, CAB wants fewer carriers operating more services for more people at lower fares with as little subsidy as possible. This aim should be furthered in 1952.

Within these policy objectives are numerous important economic cases which will either be decided this year or will run the gauntlet of conferences, hearings and oral arguments necessary to set the stage for decisions.

Atlantic Case

Foremost among these from an international standpoint is the Trans-Atlantic Certificate Renewal Case, where temporary trans-Atlantic operating rights of Pan American World Airways and Trans World Airlines will be weighed. Public hearings were scheduled to begin early in January and CAB hopes to have a decision out by mid-Summer.

Both Pan Am and TWA have asked for permanent certificates and possible adjustments of present operating patterns are involved.

Closely related is the U. S.-Middle East Cargo Service Case, in which final decision is due any day and in which Seaboard & Western Airlines and Transocean Air Lines hope to secure trans-Atlantic all-cargo certificates.

Also in the international field, CAB has set June 30, 1952, as the latest date on which it will issue an administrative report of subsidy separation for all U. S. carriers engaged in foreign, overseas and territorial operations. Separation action last year involved only domestic airlines.

Also by June 30, Board hopes to have all U. S. certificated carriers operating on final mail rates. Much progress toward this end was made late in 1951.

Running hand-in-hand with CAB's ambitious mail pay program are developments in the merger and interchange fields, all of which are designed to achieve self-sufficiency on an industry-wide basis as soon as possible.

Thus, the New England-Southern States Merger Case, will begin rolling in April with public hearings. Because of the complex issues involved and the fact that CAB cannot direct a merger, no reasonable estimates as to when a conclusion will be reached can be obtained at this time.

But before the year is out this case may be responsible for more out-of-court deals between airline merger enthusiasts than any previous case has been in CAB's history. The very nature of the proceeding has already inspired National Airlines and Colonial Airlines to agree on merging, and has stimulated exploratory talks at least among two-thirds of the 16-carrier domestic industry.

Of the same vein but in different territory is a CAB-instituted proceeding aimed at a merger between Mid-Continent Airlines and Continental Air Lines. This should reach the hearing stage in the Spring but, like the New England-Southern States Case, could produce tangible "out-of-court" results if the two lines agree to merge of their own accord.

A speedy ending is contemplated in the West Coast Airlines-Empire Air Lines Merger Case since the parties have agreed to consolidate and CAB previously gave its blessing to such an arrangement. Also the "form" merger which would finally find Inland Air Lines 100% absorbed by Western Air Lines should take place early in the year.

Interchanges

On the interchange front, several important cases are pending and decisions can be looked for in 1952. One, due to be decided any day, involves the southern transcontinental operation contemplated by Eastern Air Lines, Braniff Airways and TWA. This would be in addition to another interchange over the southern route now in operation via National, Delta and American.

Between Houston and New York, TWA and Chicago & Southern Air Lines hope to inaugurate joint Constellation service via St. Louis or Indianapolis. Their application is slated for public hearings January 29. But the case has become complex and, with possible compulsory interchanges involved may become the biggest case limited primarily to interchange issues yet to be tried by CAB.

One possibility to be explored is a New York-Houston service via Memphis between Capital Airlines and C&S. Another over the same route involves American and C&S.

For sheer complexity, however, no case on CAB's docket promises to offer as much as the general investigation of the large irregular carrier industry. Close to 100 parties will participate and public hearings should begin by Summer.

By the time the non-sked investigation is completed, certificated air coach services may well blanket the entire country; moves in that direction have already been made. In line with a CAB-inspired coach expansion program, six certificated lines are slated to enlarge their coach services or lower coach fares early in January.

New York-Balboa

Other important economic cases carried over to the new year are The New York-Balboa Through Service Proceeding and the Pan-American Grace Airways Management Agreement Proceeding. The New York-Balboa Case should be decided early in the year. It involves through service by equipment interchange between the eastern seaboard of the U. S. and South America.

The Panagra Management case, stalled for the time being by various procedural moves by the parties, is the center of the long-standing dispute between Pan American World Airways and W. R. Grace & Co. over jointly owned Panagra.

The local service field is highlighted by many important certificate renewal cases which will be decided by the Board this year. Significant in these are issues of transfer of so-called "marginal" points to local service lines from trunk-line certificates. This is part of the process of streamlining the trunk-line industry, which in turn is part of the overall design for industry-wide self-sufficiency for the trunk carriers.

By the same token, self-sufficient status for the local service lines is expected to be hastened by the transfer method since the points are generally large enough to have a strengthening effect on local operations.

There is no method of determining how any of the pending cases will be decided. But a possible measure to be remembered is that CAB (1) will cut mail rates wherever economically practicable, (2) will favor interchanges and grant no sizable route extensions, (3) will support mergers that will strengthen the industry, and (4) will push for enlarged coach services.



NEW ATC PRESIDENT James W. Austin (second from left), v.p.—traffic and sales of Capital Airlines, chats with M. M. "Jack" Frost, v.p.—traffic and sales of Eastern; Mrs. Arthur Kelly; Arthur Kelly, v.p.—sales of Western, and D. C. Bythell, Trans-Canada's director of sales and advertising.



LEFT TO RIGHT, Don Urquhardt, American's agency sales manager; W. R. Beattie, Braniff's manager of agency and interline sales; C. R. Speers, assistant v.p. and general sales manager of American Airlines, and Ray W. Ireland, v.p.—traffic administration of United Air Lines.

Traffic Conference Officials Attend AAP Party

Traffic executives of U. S. airlines attended a reception given last month at the Carlton Hotel in Washington by AMERICAN AVIATION PUBLICATIONS for the annual meeting of the Air Traffic Conference.

During the reception, A. Burton Caynor, Carlton bellhop known familiarly to all aviation customers of the hotel as "The Judge," was presented with a plaque reading: "Presented to A. Burton Caynor, The Judge, with deep affection and appreciation of his many friends in the air transport industry. Carlton Hotel, Dec. 11, 1951."

J. W. Austin, v.p.-traffic and sales of Capital, was elected president of ATC for the coming year, with Harding Lawrence, v.p.-traffic of Pioneer, and C. R. Speers, assistant v.p. and general sales manager of American, as first and second vice presidents, respectively.



RETIRING ATC PRESIDENT, Walter Sternberg, left, National's v.p.—sales, shown with R. L. Turner, Northeast's v.p.—sales; Stan Halberg, Continental's v.p.—sales, and Don Duff, Frontier's v.p.—traffic, sales and public relations.



NORTHWEST'S v.p.—sales, Amos Culbert and John Clemson, TWA's traffic manager.



"JUDGE" CAYNOR, Carlton bellhop, receives his plaque from Arthur Kelly.



IN USUAL ORDER, M. E. "Chatty" Sullivan, traffic director of Western Air Lines; Rex Brack, general sales manager of Braniff International Airways; N. B. Fry, assistant to Capital's v.p.—traffic and sales, and Harold Crary, v.p.—sales of United Air Lines.



LOCAL SERIVCE OFFICIALS chat with Bill Perreault, AMERICAN AVIATION's technical editor. Left to right, Norm Arnold, Southern's general sales manager; Perreault; Jack Mott, Piedmont's flight superintendent; Dick Hager, v.p. of Piedmont and Bill McGee, Piedmont's passenger sales manager.



CARGO IS SHOWN stacked on ramp at Medellin. Catalina is used on services to back country where river landings are necessary.

How AVIANCA Sets World Cargo Records

Colombian airline hauled 137.5 million lbs. in 1951, operates country's air mail system.

By Eric Bramley

Bogota, Colombia—A trip over the system of AVIANCA, the Colombian airline, furnishes convincing evidence that the carrier's repeated claim to world leadership in the carriage of air freight is valid.

This, of course, won't hold true on a ton-mile basis because distances are relatively short, but as far as poundage and individual pieces are concerned, AVIANCA (Aerovias Nacionales de Colombia) is hard to beat.

Here are some of the facts, figures and observations:

The airline carried 96,160,486 lbs., of freight in 1950, and estimates its 1951 total at 137,500,000 lbs. Number of individual pieces handled last year was close to 2,000,000.

Close to 30% of the company's revenues come from freight.

Average revenue from freight is 27.7c per ton-mile, although some shipments move for less than 10c—the company has had directional rates for years. Passenger fare is 6.1c per mile.

A net profit of $1,006,775 was realized in 1950 without any government support. Yearly dividend on stock is almost 12%.

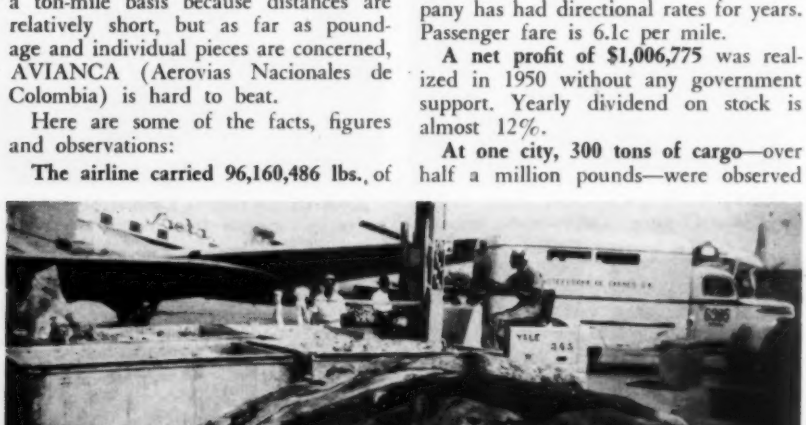
At one city, 300 tons of cargo—over half a million pounds—were observed on the ramp awaiting shipment. Ten planes were being loaded.

The airline owns and maintains most of the airports in Colombia and all of the navigational aids.

The airline operates the country's air mail system completely independent of the Post Office Dept. (see box).

The secret of AVIANCA's success is largely the fact that Colombia, a country of 11,500,000 people, has some rugged terrain and is woefully lacking in surface transportation. It has been said that Colombia jumped directly from the river boat and the pack mule to the airplane, skipping the era of the railroad. There are a few short rail lines and only a few passable roads.

From Barranquilla, the main port on the north coast, to Bogota, the capital, is about 420 miles as the airplane flies. Barranquilla is at sea level, Bogota at 8,500 ft. No roads, no railroads. A piece of cargo traveling by surface means is placed on a boat at Barranquilla and is carried for a week or so up the Magdalena River between ranges of the Andes.



MEAT AND HIDES are shown being unloaded from an AVIANCA C-46, just arrived from slaughterhouse at Planeta Rica. The meat, unrefrigerated, is in pans on back of cart, hides are in foreground. Meat is eaten the same day it is butchered.

Surface Transport

The cargo is then transferred to a train to complete the trip. Total time involved depends on river conditions, whether or not the old paddlewheeler breaks down or gets stuck on a sandbar, and numerous other uncertainties. Pilferage is the rule rather than the exception, and whether your shipment arrives intact is problematical.

A surface passenger follows the same route, if he can stand the boat accom-

modations and the food. By air it's a couple of hours.

Barranquilla-Bogota is only one example. Surface transport is equally uncertain and time-consuming between other cities. For this reason, cargo and passengers take to the air in a big way. Here are some examples:

Meat in Colombia is eaten the same day it's butchered. There's little refrigeration, and fast transportation is essential. At Planeta Rica, there is a slaughterhouse right next to an air strip. AVIANCA hauls freshly butchered meat and hides out of this point to Medellin, Bogota and other cities at the rate of at least 10 tons a day.

Newspapers constitute one of the biggest shipments, moving daily from Bogota, Cali and Medellin to other cities and to outlying towns.

Textiles move at the rate of 20 tons daily.

Vegetables and fruits total eight tons daily.

Bottled beer is flown from breweries to small towns, and the empty bottles are flown back to the breweries.

Declared valuables—government shipments of money, bonds, etc.,—are a big business.

The Colombian subsidiary of Liquid Carbonic Corp. of Chicago has a plant in Medellin making CO_2 for charged water. The company freezes the CO_2 into dry ice, flies it to bottlers in Cali, Bogota and Barranquilla, where it's returned to original form. Shipments total five tons a day.

It was at Medellin that we saw 300 tons of freight awaiting shipment. This included meat and hides, tomatoes, potatoes, stockings, radios, drugs, textiles, powdered milk, vegetable oil, crackers, 18-ft. lengths of pipe for a water works, 27 reels of electrical cable each weighing 1,400 lbs., porcelain and china. About 25 planes were to depart that day.

At Bogota, better than 100 tons were ready for shipment. At Cartagena, another port, 25 tons had been flown out in one day and 48 tons were expected from arriving ships the next day.



Hoyos — Gonzalez — Buenaventura — Carrizosa

From los Llanos (the plains country), which is sparsely populated and in which banditry is widespread, AVIANCA flies out live cattle. Most popular method of shipment is to tie all four legs of the animal, then wrap it in a hide. Eight cattle are carried in this manner in a C-47. Walking the cattle out of los Llanos would take a couple of months, even if bandits weren't encountered.

No Subsidy

The airline receives no government subsidy and, as stated before, netted over $1,000,000 in 1950 despite the fact that it must maintain and operate the airports and navigational aids.

AVIANCA describes itself as "the oldest airline in the Americas." Its predecessor was Scadta, organized on Dec. 5, 1919. The airline was drastically reorganized in 1940 to rid it of all German influence, and became AVIANCA. Pan American World Airways had formerly held a majority interest in the company, but its interest was reduced to 47% with the 1940 reshuffle. This year, when Lansa merged with AVIANCA, PAA's share in the latter fell to 39%.

Lansa was formed in 1945 by a group of former AVIANCA pilots who saw a chance to buy surplus planes cheap and compete with their former employer. The company got permits for routes paralleling AVIANCA, got permission to carry the mail, built its own fields, and went into business in a substantial way.

Traffic didn't develop, however, and this year AVIANCA took over, issuing 650,000 shares of its stock to Lansa stockholders in payment. This stock, valued at $1,222,000 U.S., reduced PAA share to 39%.

Lansa's planes will continue to be operated with Lansa markings. It is flying only DC-3's, serving as a sort of "coach" branch of the parent company, with fares 10% to 20% cheaper. Much of the route duplication has been eliminated, and Lansa airports are being abandoned.

With the merger, here's how AVIANCA stands:

23,313 route miles and 3,250 employes.

The cargo fleet, including Lansa, totals 10 C-47's, five C-46's and two C-54's.

Combination airplanes include two L-749A Constellations, 31 DC-3's, six DC-4's and two Catalina amphibians.

It employs 88 flight crews. Of 88 captains, 24 are American. All co-pilots are Colombians.

60 Domestic Points

With this set-up, AVIANCA flies three weekly trips to New York and a round-trip every other week to Lisbon, Madrid and Paris (both routes with Connies), flies to Panama three times weekly, operates from Cali to Ecuador and has a certain amount of domestic service in that country. In addition to this, of course, it serves about 60 points in Colombia.

In Colombia, its average cargo haul is 275 miles, while passengers average

AVIANCA's Operational Statistics Since 1946

	1946	1947	1948	1949	1950	1st 9 Mos. 1951
Passengers carried	222,882	296,612	432,498	507,787	573,712	436,693
Hours flown	40,429	39,570	43,978	47,320	60,839	50,651
Miles flown	5,742,030	5,769,710	6,236,607	6,717,142	8,889,265	8,002,392
Revenue ton-miles	10,118,597	13,308,263	15,669,724	17,608,189	26,771,435	25,215,420
Passenger-miles	52,923,007	64,850,661	88,043,078	108,458,110	139,937,194	112,839,139
Air freight (lbs.)	28,930,098	38,826,888	44,883,153	52,277,452	96,160,486	99,173,591
Mail (lbs.)	477,459	693,077	889,493	733,295	851,857	685,751

Note: Freight total includes four categories: domestic, international, newspapers and declared valuables.



MATHEWS CONVEYOR is used by the airline at Barranquilla to speed unloading Conveyor runs from plane into warehouse, from where photo was taken.

245. The company has kept cargo ton-mile figures only for the past two years. The 1950 total was 12,491,792, while the first nine months of 1951 reached 13,799,509.

Colombian operations are conducted during daylight hours only, with one exception—a night C-54 cargo trip Bogota-Barranquilla. Navigation aids consist of about 60 aerophares, low-frequency radio beacons.

Officers

Officers of AVIANCA at Bogota headquarters include Dr. Jorge Restrepo Hoyos, who has been president and general manager since 1947; Jorge Gonzalez, executive vice president; Fernando Carrizosa, financial vice president.

Operations director is Col. Ernesto Buenaventura, with Ralph Rhea (formerly PAA) as assistant. Maintenance is headed by Lincoln Whiting. Chief pilot-domestic is Jaime Duque, and George Cauthen (formerly PAA) is chief pilot-international.

An important man in the organization is Col. Herbert Boy, who has charge of all cargo operations. Col. Boy, highly regarded for his know-how in moving cargo, formerly served as senior Scadta representative in Bogota, and helped Colombia with its air force in the 1932 war with Peru.

60% Load Factor

AVIANCA carried 573,712 passengers in 1950, and 436,693 in the first nine months of 1951. Passenger load factor last year was running about 60%, figured on 28-seat DC-3's and 55-seat DC-4's. All schedules on main routes are heavily loaded; the percentage is pulled down by trips to the back country where loads are sometimes light. These trips, however, in many instances furnish the only link with the rest of the country.

Mail Pay--In Reverse

Probably the only place in the world where an airline operates a country's air mail system is in Colombia, South America.

Instead of receiving mail pay from the government, AVIANCA pays the government—to the tune of better than half a million dollars a year. And the government has nothing to do with the service. You can't even buy an air mail stamp at a post office.



AVIANCA postman

AVIANCA sells the stamps, furnishes boxes in which to mail the letters, handles all ground transportation of the mail, flies it to destination, and delivers it. This has been going on for 30 years.

Here's how it works: To buy an air mail stamp, you go to an AVIANCA office or to one of the airline's agents, who may be a grocer or some other kind of shopkeeper (and who receives a commission on stamp sales). Charge for a letter is 15 centavos (6c) per half ounce plus 6 centavos (2.4c) government surcharge.

The letter is placed in a box at the place where the stamp was purchased. The airline collects the letter, transports it to the airport, flies it to destination, and delivers it. About 70% of deliveries in major cities are made to postal boxes at the airline's offices. These boxes, maintained mostly by business firms, are rented from AVIANCA for 20c per month. In Bogota, for example, there are approximately 3,000 boxes in the airline's office, plus a complete post office set-up.

However, if you don't have a box, AVIANCA delivers the letter to your home, employing about 300 postmen throughout the country for this purpose. There are three mail deliveries daily, including Sunday. A letter will generally be placed in a postal box within an hour after arrival.

On international mail matters, an AVIANCA man is certified by the government to the Universal Postal Union as the "postmaster general." And the airline, rather than the government, has an air mail agreement with the U. S.

On each domestic letter, the government receives the 2.4c surcharge and 3% of the 6c air mail charge. The airline keeps the remainder. In 1950, the government received about $600,000.

With agents and postmen to pay, plus other expenses, AVIANCA has doubts that it breaks even on the mail service. Also, it necessitates operations to points that wouldn't otherwise merit service. But it's been done this way for 30 years and there are no plans for an immediate change.

The company's revenues in the first nine months of 1951 were $13,081,487, including $7,199,787 from passengers and excess baggage, $3,825,346 from freight, $1,093,584 from mail and $962,770 miscellaneous. A certain amount of freight is in this latter category, raising that class of traffic to about 30% of total revenue.

One problem faced by the company is maintenance—not quality but quantity. Its Barranquilla shops are clean, efficient, modern (latest machine to arrive was Greer Hydraulics' Governmatic, for testing of propeller governors), and employ 800 people. But further expansion will be necessary, particularly with the Lansa acquisition.

AVIANCA's business was considerably better in 1951 than in previous years, but it won't show a higher profit. Principal reasons are purchase of two Connies (a $2,600,000 project including spares and training) and the Lansa deal. However, the profit will be more than enough to maintain the dividend on stock.

20 Years Behind

It's safe to say that without AVIANCA, the country would be a couple of decades behind where it is now. And as was stated by a U. S. aircraft manufacturing representative who inspected the system: "You have to get to a place like this to realize what the airplane means to the world."



HUGE TERMINAL BUILDING at Greater Pittsburgh Airport features hotel, theater, night club, banquet halls, plush shops.

Pittsburgh's Super Airport to Open April 1

But much work remains before airlines will agree to begin scheduled operations at new field.

By Richard Fuller

PLANS for beginning regular scheduled airline operations by January 15, 1952 at the new $26,000,000 Greater Pittsburgh Airport, now in process of completion, have been pushed forward to a new target date of April 1, 1952.

Faced by numerous materials shortages, principally in electrical equipment and cable, the Allegheny County Department of Aviation has so far been unable to provide the facilities required by the airlines at the new airport. The airlines serving the Pittsburgh area are reported anxious to take advantage of the vast, ultra-modern new air terminal, but will not move until their requirements are met in full. Now continuing operations from the Allegheny County Airport, the airlines will require the following facilities before changing their operating base:

- **At least 15 days' operation** of the CAA control tower service.
- **Operation of the Instrument Landing System** for a minimum of 15 days.
- **Provision for weather minimums** equivalent to those at Allegheny County Airport.
- **Terminal in a state of completion** for at least 60 days, providing space for installation of passenger-handling facilities.
- **Restaurant facilities ready.**
- **Hangar negotiations completed.**

While work at the new airport is going ahead, much remains to be done before scheduled operations can be moved from the County Airport. At the present time, the CAA is being held up by lack of funds in making and maintaining tower and other electronic installations. A CAA spokesman stated that, although funds earmarked for other projects could be diverted to the Greater Pittsburgh Airport, it seems very doubtful that the new airport will be ready for the airlines by the present opening date.

In spite of the hold-ups, the Greater Pittsburgh Airport is expected to establish a whole new set of standards in airline passenger comfort and convenience. Hailed by Pittsburgh newspapermen as "the world's greatest," "stupendous," and "beyond comprehension," the airport, when it goes into operation, will certainly be one of the nation's finest.

Terminal Building

Most impressive part of the airport is the terminal which not only is equipped to process passengers but also combines the features of an office building, a hotel, a recreation center, and a shopping emporium.

A semi-circular structure of granite, brick, stone, and glass, the terminal is 874 feet long with an east-west façade of 440 feet. In the main area, it is 90 feet wide, and 96 feet wide in the dock section, a 600-foot-long finger extending out on the same axis as the building proper.

Around the dock on the loading apron are spotted 10 airliner refueling stations, and at right angles to the dock are six more. Plans call for construction of two more identical docks rotating out from the main building to the east and west, allowing space for an ultimate total of 30 fueling and loading stations to be fed by an equal number of gates.

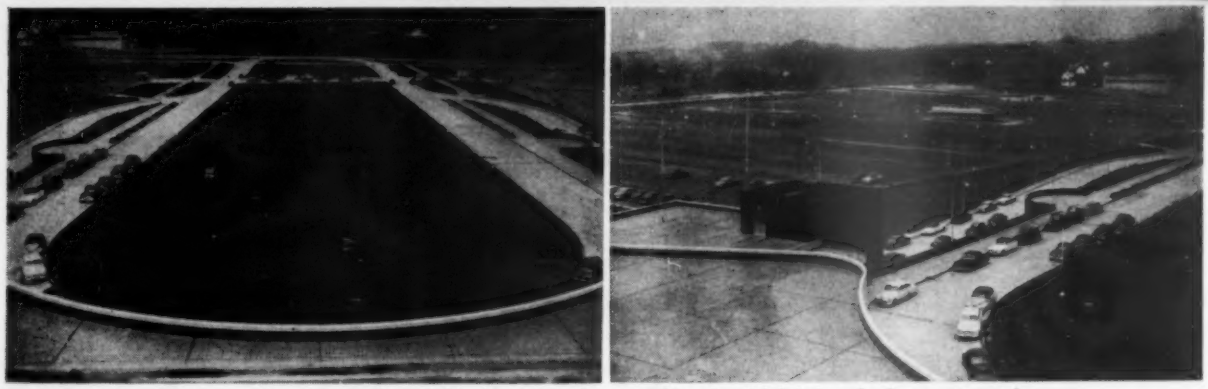
Interesting but expensive features of the refueling stations around the docks are their sunken fueling pits, two to each station, built at a cost of $1,250,000. Cost was considerably increased by the fact that the pits were hewn out of solid rock on which the apron is laid. The airlines will use the fueling pits on an annual rental basis and will operate and maintain them, their cost to the county being amortized with rental funds.

Advantage of the pits is that they obviate necessity for any vehicular traffic (except for small baggage trucks) on the loading aprons. The pits are arranged so that there is one gasoline pump (purchased from Bowser, Inc.) under each wing of every airliner. The pumps are equipped with 50-foot hoses which are reeled back onto their wheels by electric motors. Space has been left in each pit to allow for future installation of a second pump. Also available from the pits are alternating and direct current outlets, as well as air-conditioning systems.

Of the terminal's seven floors, two have airline offices. Lowest level, called the field floor, is accessible by car. Thus a passenger who already has his ticket can drive in, leave his baggage on the field floor, and proceed unencumbered to have his ticket checked on the first floor. Baggage brought by passengers to the first floor is passed to baggage handlers below through spiral chutes, each airline managing its own baggage-handling facilities. Inbound passengers will pick up their baggage on the field floor, where limousines and taxis will be immediately available.

The large rotunda, which serves as entrance lobby for the terminal building is built of eye-catching Missouri marble and Canadian pearl black marble, set off by yards of plate glass and steel fixtures. The rest of the building, in green tile and plaster, is almost as striking. Here are the facilities provided in the big building:

Sixty-two hotel rooms, ranging from conventional singles to large suites permitting light housekeeping; two large dormitories for airline personnel; two public observation lounges; coffee shop seating 450; a motion-picture theater seating 316; drug store; haberdashery; post office; barber shops and hairdresser shops with private baths; bank; dining room, seating 550, with view of the field; dining terrace seating 250; cafe-



TERMINAL is entered through spacious plaza (left); in center of east parking lot (right) is refreshment concession.

teria and kitchen to accommodate 3,000 employees; parking lot for 5,000 cars; florist and other shops; merchants' display windows; public garage; supermarket; children's recreation center; roof garden and health center, physicians' and dentists' offices; cocktail lounge and tavern.

In addition to these concessions, outside the terminal building proper are a gasoline station and a hot-dog stand on the parking lot. Early in construction of the terminal, considerable doubt was expressed about the wisdom of building the sixty-two hotel rooms. Would there be a large enough clientele to make them profitable? But as the building has progressed, numerous Pittsburgh business firms have been clamoring to lease hotel space on a long-period basis for occasional use of their executives arriving at the airport on night flights. Now the hotel rooms are regarded as having one of the terminal's most profitable potentials. Incomplete plans now are to build another hotel, separate from the terminal proper.

Since the field is located in the Pennsylvania hills, extensive leveling was necessary when work on the runways began. It was found that the airport site of 1,100 acres rested on a bed of rock which now supports 60 per cent of the runway area. E/W runway is 5,500 feet long with a 2,500-foot extension now under construction; NW/SE is 5,900 feet, a 300-foot extension scheduled for next year. NE/SW: 5,770 feet. All three runways are 150 feet wide. Aprons and runway thresholds are of concrete.

Remainder is built of black-top asphalt laid down in accordance with CAA's 1944 runway specifications.

Though the runways are built to take a 75,000-lb. wheel load, engineers believe they can withstand much more because of the rock substructure. Since warming-up and parking aprons and runway ends are of concrete, airport engineers do not expect to encounter trouble from asphalt deterioration caused by waste jet fuel. Amount of fuel spilled by aircraft in the center of the runways will be negligible, they believe.

Operational control of the field is now in the hands of the Air Force's 71st fighter interceptor squadron, flying North American F-86 Sabrejets, at the east part of the field. In the south sector is an Air National Guard training unit, directed by the AF control tower. Air Force is planning to install a wartime Ground Control Approach system, but decision has not been made as to which runway it will serve. Work is now progressing to repair an Instrument Landing System located on the SE/NW runway. This is probably the system which will be used by the airlines when operations start, but this gear will ultimately be replaced by a new ILS system on the E/W runway.

Approach Lighting

Present approach lighting is an Air Force neon system, which will not continue in operation after opening of the field next year. Conferences between airport management, CAA, and AF have not yet brought a decision on what approach lighting will be permanently installed. Probability is that the widely used left-row ladder system will be decided upon.

In spite of CAA's current lack of funds for the Greater Pittsburgh Airport personnel and equipment, a large part of the third floor of the terminal building has been allocated for CAA occupancy. In addition to operating control tower and navigational aids, the CAA may possibly move its Interstate Communications System, now located at Allegheny County Airport, to the new airport.

Plans for continuing work on the airport after the opening in April call for three new runways parallel to those now built. Some time this spring, work will be started on a new east loading apron and east loading dock, so that gates can soon be increased in number from the original 16 to an intermediate 23. Construction of the E/W parallel runway will probably begin late this year. Two $2,750,000 hangars are scheduled to be built soon, and they are listed as revenue-producing items on the airport's long list of incomes. They will be rented to the airlines, thus bringing in sufficient income to pay for themselves in 30 years.

Here's how cost of the entire airport breaks down, according to figures released by the Allegheny County Department of Aviation:

Work on the airport was begun by the Air Force (then the AAF) in 1941, with the old War Department and the CAA spending approximately $5,000,000 on runway construction. Allegheny Board of County Commissioners (John J. Kane, Chairman) decided at the end of the war to expand and improve what the Air Force had done. Faced by postwar cuts in appropriations, the retrenching AF agreed with the county's proposal, although keeping a 25-year lease on 102 acres of land where its installations stood. In November, 1945, the Commissioners created a Department of Aviation under the direction of John B. Sweeney, to design and prepare plans for expansion of the Greater Pittsburgh Airport. (This same department will be responsible for operation of the airport after its opening.)

Cost of the site to Allegheny County was $658,000; $17,000,000 was spent by the county for the extensive improvements and the addition of the terminal building. CAA allocated $3,750,000, while the state of Pennsylvania contributed $750,000. Add to this the $2,750,000 for the two hangars soon to be constructed and the total cost of the airport in its initial stage will come to a total of $26,108,000.

Annual revenue from the airport's huge concessions and other incomes is expected to be in the neighborhood of $1,700,000, while operating expenses of $600,000 less are anticipated. Profit is sufficient to amortize money borrowed to do the work. But this profit estimate is on the conservative side. Privately, opinion has been expressed that revenue will be much higher.

First in SAFETY





Getting urgently needed equipment and supplies to troops in difficult terrain has always been a decisive factor in warfare. Stanley Switlik and other pioneer parachute manufacturers reasoned that the materials could be dropped with properly designed parachutes. Then began the experiments with cloth and design from which grew today's cargo chutes. Thanks to this research and development, it is now possible to safely drop delicate equipment, medical supplies, food and other materials.

Another *first* through research for greater safety.



SWITLIK

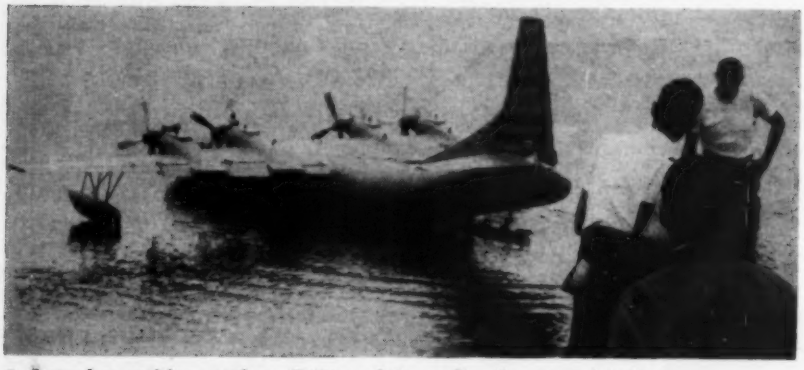
PARACHUTE COMPANY, INC.

LALOR AND HANCOCK STREETS, TRENTON, NEW JERSEY, U. S. A.

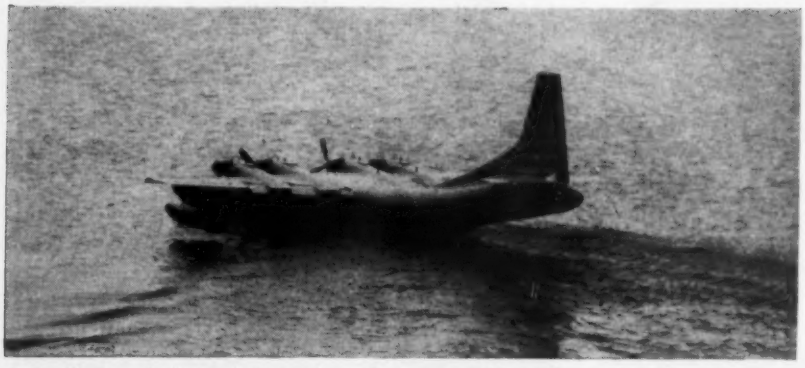
Convair Develops Beaching Cradle Model



1. Scale model of new Convair seaplane cradle is self-propelled.



2. Steered to waiting seaplane (R3Y model), cradle slips around hull.



3. Cradle is made fast to hull, seaplane pilot turns up his engines and . . .



4. Seaplane and cradle are taxied to ramp, climb it on cradle's wheels.

CONSOLIDATED Vultee Aircraft Corp. has recently demonstrated to the Navy a dynamically similar model of a self-propelled beaching cradle for big flying boats. Working with a radio-controlled model or "skate" of the Navy's new Convair R3Y turboprop transport seaplane, the beaching equipment demonstrated that it can:

- **Reach the seaplane under self-propulsion** as it waits offshore.
- **Attach itself to the hull.**
- **Ride with the plane** to the landing ramp.
- **Become the mobile means of locomotion** for the flying boat up the ramp to the parking area ashore.

Until recently, the limiting factor of the seaplane has been its inability to come ashore without using time-consuming and cumbersome cranes and cradles. Because of the Navy's increased interest in flying boats, both as patrol bombers and as transports, and because of the impressive design advances which could make flying boats once more a major means of intercontinental air travel, development of fast and trustworthy beaching equipment has become a prime necessity.

Operation

Here is how the beaching equipment will operate:

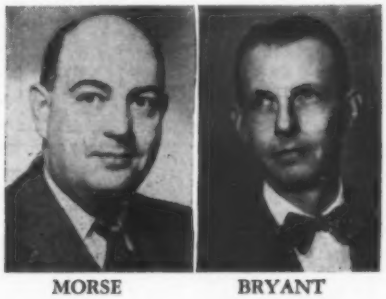
The 20,000-lb. cradle, powered by four outboard motors at a speed of four knots, is sent out to the waiting seaplane. The operator of the cradle seated at the controls in one of two aluminum-alloy pontoons, guides the cradle so that the pontoons slide on both sides of the hull. Pilot-to-cradle intercom is connected; then beaching equipment and flying boat are made fast with steel cables by a seaplane crewman. Then the cradle's substructure is elevated and its pads make firm contact with the bottom of the seaplane hull. This is done by means of pneumatic pistons built in two vertical columns which descend from the pontoons.

The pilot turns up his engines and taxis to and up the ramp on seaplane power. The cradle operator, guided by a signalman, steers the cradled seaplane to the parking position and applies pneumatic brakes. Operation is estimated to take about five minutes.

Safety feature of the beaching cradle include a ratchet on each of the forward wheels to keep the cradle and seaplane from rolling backward down the ramp in case of power failure. Ratchets can be disengaged to permit stern-first launching.

INDUSTRY PERSONNEL

Consolidated Vultee Aircraft Corp. has named **Thomas G. Lanphier, Jr.,** vice president and assistant to the president; **Routt A. Bryant, Jr.,** manager of plant engineering for the Guided Missile Division; and **R. H. Widmer** assistant chief engineer at Fort Worth.



MORSE BRYANT

Donald R. Morse has been promoted to executive assistant to the vice president-finance for Curtiss-Wright Corp.

Albert W. Garland has been hired as Aircraft Engine and Parts Corp.'s director of purchasing and **Donald E. Donovan** was named regional director for the Washington, D. C., area . . . **Bernard W. Ford** of Blyth & Co., Inc., has been appointed to the Hiller Helicopters board of directors.

Lear, Inc., has chosen **A. G. Handschumacher** general manager; **W. Hawkins Espy** chief engineer; **A. H. Endlekofer** works manager; **A. N. Lawrence** head of the contract division; **Richard H. Stewart** quality control manager; **George K. Otis** general manager of Lear-Cal at Los Angeles; and **LeMoyne Dabbs** manager of the eastern division at Teterboro.

North American Aviation has named **Ralph H. Ruud** manufacturing manager; **Gary Stroh** general superintendent at Los Angeles; **W. F. Snelling** general superintendent at Long Beach and Downey; and **D. C. McMillan** superintendent over production control. NAA's Fresno plant has selected **Louis S. Walt** general administrator; **Thomas L. Regon** superintendent; **J. D. Phillips** personnel director; and **Kerme Anderson** public relations representative.

Alvin B. Copeland, who has been with Bendix Aviation Corp. and other aviation companies for 13 years, has joined Airframe Supply Co., Akron, O., as sales engineer.

Air Associates, Inc. has named **Charles F. Irons** branch manager of the Chicago division and **Price Phelps** assistant sales manager of the Aircraft Products Division.

Kaiser-Frazer Corp. has appointed **John V. Banks** chief production engineer for auto and aircraft operations and **B. M. Laney** assistant works manager for all aircraft shifts at Willow Run . . . Link Aviation, Inc., has assigned **William L. Mustard** as manager of the Dayton office.

W. J. Verplant promoted to plant engineer of Douglas' Santa Monica division . . . **Henry J. MacDonald** becomes production manager for Kaman Aircraft Corp.

Production Spotlight

Nearly Ready: The first production model Convair 340 twin-engined transport is scheduled to make its first flight January 16. The plane was scheduled to come out of final assembly at Convair's San Diego plant on December 27. The first 340 will go to United Air Lines.

Convair is figuring on about two months for completion of Civil Aeronautics Administration flight certification tests after the plane's initial test flights. About 20% of the certification work will be done with the United plane, while the remainder will be handled by the company's 340 prototype.

Not at Denver: **Boeing Airplane Co. has again laid to rest rumors that it plans to build a new, large plant in the Denver, Colo., area, reportedly for production of the eight-jet B-52 long-range bomber. Boeing gave no indication as to where the B-52 actually would be built, but said that the company has no plans for setting up a plant in Denver, now or at any time in the foreseeable future.**

B-47 Modification: Grand Central Aircraft Co.'s new Tucson, Ariz. plant, which will be used as a modification center for Boeing B-47 jet bombers, expects to start the modification program this month. The company has received the first B-47, and is using it to familiarize engineers and technicians with the airplane preparatory to the start of the full-scale program. A 12,000-ft. runway is now being constructed at Tucson Municipal Airport to accommodate the B-47's arriving for modification and a seven-mile connecting ramp has been set up to tow the planes to the GCAC plant.

Grand Central now has 4,600 employes at the Tucson plant, engaged in de-cocooning, overhauling and modifying Boeing B-29's. When the B-47 project gets in full swing, employment is expected to climb to 10,000. In addition to the modification project, GCAC may also be called upon to handle a B-47 cycle maintenance program for the six jet B-47.

L-17 Spare Parts Program: **Ryan Aeronautical Co. has started assembly of L-17 Navion liaison plane spare parts on an order for more than $800,000 for the Army Field Forces, the Air National Guard and the Air Force. First assemblies are rudders and windshields, to be followed by flaps, canopies, horizontal and vertical stabilizers, elevators, ailerons, upholstery items and fairings. Larger jigs are to be moved in February for wing assemblies, pilot seats, landing gear, nose cowls and engine mounts. Bulk of the program is due for completion by early summer. Ryan built about 250 L-17's.**

Convair Rolls Its Own: Consolidated Vultee Aircraft Corp.'s Forth Worth Division has installed a new 400,000-lb. pinch-type bending roller for rolling contours in B-36 wing skins. Installation of the machine makes it unnecessary to ship wing skins to Houston, Tex., for processing in a similar roller there, as was done in the past.

Expansion Notes: **Chevrolet Division of General Motors Corp. has broken ground for its new 1,000,000 square foot plant at Flint, Mich., which will produce parts and subassemblies for Wright engines to be assembled in the Division's Tonowanda, N. Y., plant . . . Crosley Division of Avco Manufacturing Co. has started construction work on its new Evendale, O., plant, which will start work on Air Force and Navy contracts for fire control equipment in June . . . Thompson Products, Inc., will lease the former Lincoln Electric Co. plant in Cleveland, O., to expand its output of jet engine parts by about 20% . . . Pastushin Aviation Corp. is building a new plant in Hawthorne, Calif., for production of aircraft components.**

Speedy Output: Servel, Inc., has completed and delivered its first set of F-84 Thunderjet wings being built under subcontract to Republic Aviation Corp. The job was completed two months ahead of schedule. Servel is building the wings at a new plant at Evansville, Ind.

American Aviation Wins Again!

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AGAIN American Aviation magazine has been awarded top honors in the TWA Annual Aviation Writing Competition. 1951 winners recently announced include William V. Henzey, Transport Editor, and Keith Saunders, Associate Editor. Mr. Henzey received his plaque for the "best business and financial story" of the year and also the "Sweepstakes" Award for the best entry in all writing categories, Technical Publications Division; Mr. Saunders, for the "best sales and promotion story".

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ANDB Warns of Need for New Landing Aids

Research board outlines technical problems in future navigation and traffic control system.

By William D. Perreault

THE instrument landing systems and precision approach radar equipment, as we now know them, will not be capable of handling the projected traffic volume at busy terminal airports, according to the Air Navigation and Development Board.

In a thought-provoking report on progress toward the development of a common system of air navigation and traffic control, the ANDB, which is primarily responsible for planning and developing such a system, also warned that the economic wisdom of fully automatic landing equipment for commercial airline operation may prove economically unwise.

Common System

Much has been said about the Common System of air navigation and traffic control. In a newly released "Summary Progress Report," the Air Navigation Development Board added some interesting new facts:

- **Extensive tests and service experience** have established conclusively that the very high frequency omni-range and distance-measuring equipment provides a sound building block on which to construct the common system.
- **Inherent limitations in the instrument landing system** and precision approach radar make it clear that they are not adequate, in their present forms, for the projected traffic volumes at busy terminal airports. Within a decade they shall have to be replaced, possibly by a narrow beam scanning type system.
- **Procedural changes,** particularly in currently used separation standards in the en route and approach areas, will be necessary if full utilization is to be made of the improved electronic aids.
- **Economic wisdom** of installing equipment for fully automatic landings of commercial aircraft is questionable.
- **Human judgment and skills** remain the predominant tools; machines will be used solely as an aid to performing routine tasks. Furthermore, man is poorly equipped to monitor complex electronic equipment. ANDB feels that engineers should give consideration to machines which will monitor the work of the human pilot.

The technical staff of the Air Navigation and Development Board has always been small. Since the 50% cut in its operating budget last year, operations have been further curtailed, reflecting the agency's primary function as a civil aviation agency. Despite the cutbacks, however, ANDB's activities continue in force through the many research contracts it had previously authorized with government and private groups. An indication of these activities:

- **Development work on a VOR antenna design** to provide about 50% improvement in omni-range accuracy.
- **Development of an engineering model** of automatic precision approach radar.
- **Radio-wave propagation studies** by the National Bureau of Standards for ANDB in the 1,000 to 1,600 megacycle frequency band.
- **Development of a series of high-power tubes** for the 1,000-1,600 mc circuits.
- **Research by the Weather Bureau for ANDB** into better methods of measuring and forecasting weather and determination of its effects on air traffic.
- **Measurement and analyses of aircraft operations** at several busy terminals to establish specific data on aircraft operating variables under all conditions of terminal area flight.
- **Construction of traffic and final approach simulators** by two of the field testing facilities cooperating with ANDB — CAA's Technical Development and Evaluation Center, and the USAF's All-Weather Flying Division.
- **Developmental program to control power settings** with changes in aircraft angle of attack to give air-speed control during flare-out.
- **Sponsorship of a radio altimeter and computer development** to provide altitude data including rate of change information.

All 426 civil omni-range stations are now installed; over 75% are commissioned for general use. VOR is the international standard short-range navigation aid. To determine the wisdom of this choice of aids, which ANDB inherited at the time of its formation, extensive field tests were conducted. These proved that the VOR provides azimuth position indications with 2- to 3-degree accuracy, distance-to-station accuracy within one-half of one percent out to the 100-mile mark. These accuracies are adequate for some ten years. Beyond this, DME with VOR, using a modified antenna now under development, will provide for anticipated accuracy of future years.

Recognizing the improved equipment and procedures now coming into use, operational groups will have to develop more realistic flight rules, particularly aircraft separation standards. ANDB feels that the three-mile radar separation rule may have to be relaxed in some areas, that aircraft should be allowed closer to the runway threshold while another is still on the runway, and that separation in en route areas could be reduced. The effect of these changes on airport acceptance rates is shown in the accompanying chart.

Frequency limitations will force the equipment of the ultimate Common System into the 1,000 to 1,600 megacycle band, a relatively unexplored frequency band. Data reduction devices to ease the traffic controller's job, radar automatic tracking to provide ground speed, filtered displays showing aircraft location and identity, and sequencing devices for automatic selection of the most efficient arrival order of approaching aircraft are typical of this equipment.

There is evidence that transmissions in this band propagate considerably beyond the line of sight. UHF frequencies will be repeated at regular geographic intervals, but this will be impossible until specific range data is available.

Further, UHF frequency broadcasts will require much greater power, requirements being proportionate to the square of the transmitting frequency, and power tubes are not available for such needs. Finally, UHF antenna problems are impressive. It is difficult to assure acceptable transmission and reception in all aircraft attitudes. Flush antenna will probably necessitate multiple units with frequency-operated switches in order, at any given moment, to correct the most effective antenna.

Future Aids

In attempting to establish future navigation equipment, the ANDB decided that, by 1980, two to two and one-half times the 1950 traffic level might be expected at busy airports. Exceeding the projected need, ANDB proposed an airway arrangement which would meet future traffic needs — one plane per minute in each direction.

To handle this volume, navigation equipment errors were projected as plus or minus 1.5 degrees in azimuth and plus or minus 1% in indicated distance. Two one-way lanes, 15 miles apart, would handle traffic. Each major lane would be divided into three lanes separated by altitude, and all planes in any altitude lane would cruise at the same speed. Three-minute longitudinal sepa-

Condition	Landing Rate (Aircraft per Hour)	
	If first aircraft must be off runway before next aircraft passes wave-off. (Runway exists every 1,000 feet.)	If first aircraft must decelerate to 20 mph before next aircraft passes wave-off.
I Aircraft of each type have identical speed programs and follow same path from wave-off to turn-off.	45	90
II Same as Case I but with speed variations as presently observed.	35	70
III Same as Case II but all aircraft follow common approach path for 4 miles prior to wave-off; minimum separation of 1½ miles.	25	40
IV Same as Case III but with interval at turn-on fixed at largest value needed for any two successive aircraft.	20	30

NOTE: For Cases I, II and III the interval at turn-on is optimized for each pair.

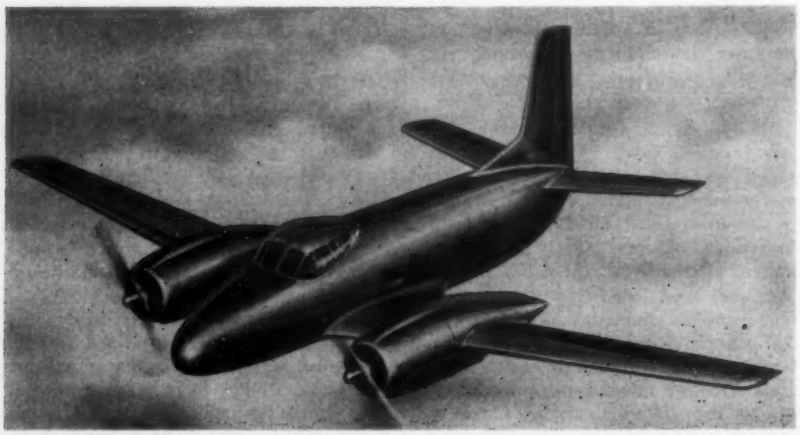
AIRCRAFT SEPARATION RULES cause the greatest limitation to the acceptance rate of airports, according to ANDB. Tables show the benefits in acceptance rate which might be expected by changes in existing separation requirements.

ration would be used in any lane. This configuration would be used in the 100-mile area around the terminal.

ANDB sees the merging of terminal and en route traffic control in heavy traffic areas, such as the northeast part of the U. S. There, existing and planned radar installations will provide virtually complete radar coverage for en route areas as well as in terminal areas. Distinction between terminal and en route areas will be primarily one of the degree of control exercised.

Another prominent trend in the ANDB report is the realization that exceptionally bad weather, of the "zero-zero" variety, is rare indeed and that traffic concentration is so high in small areas that the solution to this type of weather problem is more susceptible to special treatment outside the common equipment of the navigation and traffic control system in general use.

ANDB notes that in 1949 there were appreciable delays at only 28 airports, that a 1948 study shows that 76% of the passenger traffic was generated in 50 communities and that the Northeast corner of the country, occupying only 10% of the over-all U. S. territory, accounts for 32 of the 50 largest metropolitan areas. Further, in two years and 1,100 flights between Washington, D. C. and Detroit, the U. S. Air Force's All-Weather Flying Division encountered "zero-zero" weather only five times, only once on actual landing. American Airlines, Eastern and Sperry Gyroscope Company, in two years of all-weather flying experiments in the New York area, encountered these conditions only 11 times; only once were the minimums below 200-300 feet on actual landing.



FIRST VIEW of AF's latest trainer, the Beech T-36, now in production at Beech Aircraft Corp. in Wichita and at Canadair, Ltd., in Montreal. The T-36, an advanced twin-engined trainer, may also be used as a light transport. Powered by two 2,300-hp Pratt & Whitney R-2800 engines, it will gross over 25,000 pounds and carry an instructor and three students.

Daily Plane Utilization

International

		July	August
American	4 eng. pass.	4:59	5:13
Braniff	4 eng. pass.	8:15	8:12
C & S	2 eng. pass.	9:24	9:23
	4 eng. pass.	8:20	8:22
Colonial	4 eng. pass.	6:21	6:43
Eastern	4 eng. pass.	10:11	9:46
National	4 eng. pass.	9:31	9:22
	cargo	7:02	1:25
Northwest	4 eng. pass.	9:23	10:26
	cargo	10:07	.....
Panagra	2 eng. pass.	3:52	3:50
	4 eng. pass.	6:40	5:56
	cargo	1:35	:50
Pan American Latin Amer.	2 eng. pass.	3:35	3:50
	4 eng. pass.	7:38	7:41
	cargo	3:40	4:09
Atlantic	2 eng. pass.	:45	:41
	4 eng. pass.	6:26	6:29
Pacific	4 eng. pass.	6:11	6:35
Alaska	4 eng. pass.	8:23	8:56
	cargo	9:16	10:59
TWA	4 eng. pass.	7:42	7:43
	cargo	:31	.....
United	4 eng. pass.	5:30	5:32

Local Service

		July	August
All American	DC-3	6:32	6:55
Bonanza	DC-3	4:24	4:30
Central	DC-3	5:49	5:04
Empire	DC-3	4:51	4:36
Frontier	DC-3	7:38	7:36
Lake Central	DC-3	5:41	5:59
	Beech Bonanza	:52	:48
MCA	DC-3	6:13	6:15
Mid-West	Cessna 190	3:13	3:09
Ozark	DC-3	6:13	6:34
Piedmont	DC-3	9:14	9:22
Pioneer	DC-3	6:15	5:54
Robinson	DC-3	6:27	6:31
Southern	DC-3	5:46	5:47
Southwest	DC-3	5:50	5:53
Trans-Texas	DC-3	6:07	5:59
West Coast	DC-3	4:46	4:47
Wiggins	Cessna T-50	2:22	2:02
Wis. Central	DC-3	7:04	7:12

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COMMITTEE MEMBERS Don Randolph, George Bright and Charles Wade of AAA are shown with Charles Knobler of CAA.

AAA Union Forms Safety Committee

Local service line's mechanics take initiative in fostering safe maintenance.

AS A STATEMENT of policy, the following paragraphs are simple and to the point:

"The purpose of the Safety Committee is the furtherance of safety in airline operation. The committee shall actively promote safe airline maintenance practices through increased job knowledge and technical ability, high professional standards and personal pride.

"It is the sense of the committee that its prime purpose — safety — shall not be compromised by company and/or union activities.

"The committee shall be comprised of one representative each from Line Maintenance, Accessories, Instruments, Communications and Stores. The committee shall meet with representatives of management at regular intervals for the purpose of promoting industry and personnel safety."

This statement is not some proposed ideal. It is the statement of policy of the safety committee formed by the International Association of Machinists, Local 1976, at All-American Airways in its Washington shops. It is the union's answer to industry needs for greater safety consciousness on the part of labor and management.

Employes Take Lead

Management at All-American is anxious that the initiative taken by the IAM mechanics be retained by them. Indications are that Joe Gellespie's Local 1976 will do just this. In the way of maintaining the initiative the union set up George Bright, lead mechanic and five year AAA veteran now working in the engine and wheel build-up shop, as chairman of the Safety Committee.

Working with Bright are two other (see photo) capable and conscientious mechanics: lead mechanic Don Randolph of the repairable parts and sheet metal shop, with over eight years of AAA service, and Charles Wade of the accessory overhaul shops, a three-year member of the AAA team. Activities of these three will be in combination with the representatives of each of the shops as indicated in the written agreement.

Safety Meetings

The Safety Committee has had several meetings since its formation eight months ago. The IAM structure provides for the establishment of a safety committee, but this is normally interpreted to mean a committee looking primarily toward the safety of working conditions as related to the men.

The inclusive direction of the AAA Safety Committee is indicated by one of their earliest activities. They have set up a mandatory tool list which they feel to be the minimum with which any mechanic can do his assigned job. At present they are looking over the possibility of setting up training classes on their own time to utilize the talents of the lead men and other supervisors in bringing up the general level of maintenance know-how.

While the All-American Safety Committee is the work of the mechanic, no small part of the credit for getting things rolling goes to El Cheyno, former American Airlines veteran and Director of Maintenance with AAA since the founding of its airline division, and Charles Knobler, CAA Safety Agent assigned to handle CAA/AAA relationships in the maintenance and engineering field.

Technical Literature

ADVANCE RELAYS: A two-color catalog illustrating and describing the complete line of standard and special relays, with detail data, dimensions, contact combinations, circuitry and prices is being circulated by Advance Electric and Relay Co., 2435 North Naomi St., Burbank, Calif. Included in the catalog are circuit controls, radio and high frequency, keying, midget, aircraft, coaxial, hermetically sealed, and special-purpose types for ready application.

TEMPERATURE CONTROL SYSTEM: Recently released by the Barber-Colman Co., Rockford, Ill. is a new four-page bulletin on the company's new aircraft temperature control system called Micropulse. Response and pulse characteristics are illustrated with diagrams, and all engineered components of the systems are described in detail. Bulletin is designated F-4869.

HEAT-TREATING MACHINE: General Electric Co., Schenectady 5, N. Y. has announced availability of a new four-page, two-color bulletin describing a new heat-treating machine—Type HM-40-PV —for handling parts to be induction-hardened progressively. The bulletin, designated GEA-5682, describes the features, applications, and specifications of the heat-treating machine which is to be used either with m-g or electric induction heaters for hardening or annealing selected areas of parts up to three inches in diameter and 40 inches in length.

FIRE EXTINGUISHERS: Information on modern fire-fighting devices and different fire extinguishing agents used in them is contained in a 32-page illustrated booklet titled "Correct Fire Protection." Booklet, published by American-LaFrance-Foamite Corp., Elmira, N. Y., illustrates and describes various sizes of units available for use with the different kinds of fire-extinguishing agents.

ELECTRIC TRUCKS: A 12-page brochure describing the company's line of electric trucks in capacities from 1,000 to 100,000 pounds can be obtained from Philadelphia Division, Yale & Towne Manufacturing Co., 11,000 Roosevelt Blvd., Philadelphia 15, Pa. The booklet describes generally the types of Yale electric trucks available, their features, a table to aid in selection, and application data.

HYDRAULIC FLUID: Details of the general properties of Skydrol, a synthetic nonflammable hydraulic fluid, and latest data on laboratory evaluation and performance in aircraft installations are included in a 20-page booklet which has been issued by Monsanto Chemical Co., St. Louis, Mo.

ELECTRIC TRUCKS: Bulletin 5143, presenting with full specifications, illustrations and drawings, four "walkie" electric truck units designed for lifting, moving, and stacking heavy loads, can be obtained from Barrett-Cravens Co., 4609 S. Western Blvd., Chicago 9, Ill.

New Products



Aircraft Seat

Production has been started by Transport Equipment Co. of a new model TE-314 high-density seat, which is capable of withstanding aft-facing loads of nine G's. New seat is available of two basic frame dimensions: the stan high-density width and another high-density version built to slightly wider dimensions. Structure of the seat is of all-steel Chrome-Moly tubing to which a variety of side panels, aisle panel and arm rest designs, colors, textures and other finish materials can be applied. Feature of the new seats is a friction mechanism on the recline controls which permits seat back recline angle to be set at will by the passenger at infinite adjustments along the entire recline range, eliminating the notched or stop types of mechanism. A single unit weighs 28 pounds; double unit, 48 pounds; triple unit, 75 pounds. The TE-314 is entering production for Trans World Airlines for the company's high-density Constellation coach service. It is suitable for the Convair 340, the Martin 404, the Douglas DC-6 and DC-6B, the Boeing Stratocruiser and other aircraft.

Address: **Transport Equipment Co.,** 2501 No. Ontario Street, Burbank, Calif.

Tank Cleaner

Turco Products has announced availability of a new non-foaming, non-corrosive aluminum hot tank cleaner that leaves no powdery residue. Manufactured for the aircraft industry, the new product is called "Aviation." The manufacturer states that the new cleaner, which meets the corrosion requirements of MIL-C-5543, removes all types of foreign matter, including etching-type marking ink. Although Aviation has been especially formulated for use on reactive metals such as aluminum,

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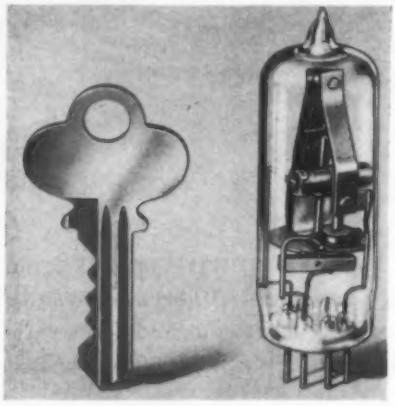
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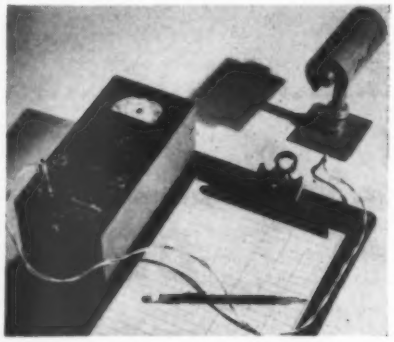
Address: **Turco Products, Inc.,** Terminal Annex 2649, Los Angeles 54 Calif.



Thermal Relay

Available from Thomas A. Edison, Inc. is a new sealed-in-glass miniature thermal relay designed to save on space and weight. The device, Model 207, is hermetically sealed in a T-5-½ glass envelope with a miniature button 7-pin base. It weighs ½ ounces, has a seated height of 2¼ inches, and a diameter of ¾ inches. Delay periods are from 5 to 120 seconds, with standard heater voltages of 6.3v, 27.5c and 115v alternating or direct current. Contacts are rated at 2.5 amperes 125v alternating current or 1.0 amperes 125v direct current. The ambient is compensated from —60 to +85 degrees Centigrade. Manufacturer states that the relay is adaptable to airborne equipment in such applications as cathode protection in electronic tubes, gyro erection in autopilots, overvoltage and overcurrent protection, holdovers and integration. Approximate price range is from $3.50 to $7.50.

Address: **Instrument Division, Thomas A. Edison, Inc.,** West Orange, N. J.



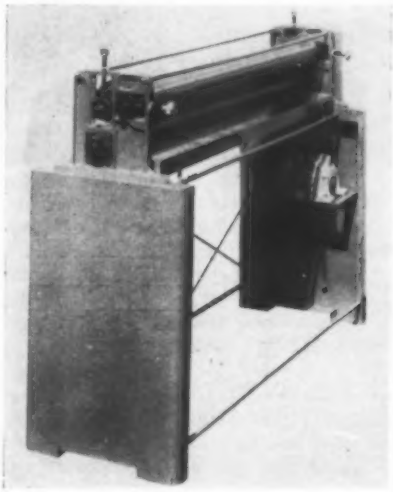
Temperature Indicator

An aircraft temperature indicator having an accuracy of ±0.2 degrees Fahrenheit over a range from about 15 degrees F. to 120 degrees F. has been developed

as model 170-100 by Beckman and Whitley. Instrument operates on a bridge principle, having a thermistor in one leg. Mounted in a faired and shielded stand, the thermistor responds to temperature changes by unbalancing the bridge. This unbalance is displayed on the indicating instrument which forms part of the data-recording clipboard. Response to temperature changes takes place in less than one second. Power for the unit is provided by two type-D flashlight batteries located under the meter panel and capable of about 500 hours of continuous operation.

The thermistor is intended for wingtip installation while the data board is hand-held by the researcher in cabin or cockpit. With this disposition of equipment, data on temperature differentials with altitude can be obtained; and boundaries between various air masses can be located in studies of synoptic meteorology. Device is also useful for other applications.

Address: **Beckman & Whitley,** 904 San Carlos Ave., San Carlos, Calif.



Coating Machine

New machine in the Wallace & Co. line of coaters is model 51, which applies paint, lacquers, adhesives, oils, etc. The new coater, driven by a ¼ horse-power motor, operates at a speed of approximately 64 feet per minute to coat one or both sides of flat work to 52 inches in width. Model 51 coats up to 3,800 linear feet per hour or 15,000 square feet 48 inches wide per hour. Manufacturer states that use of the machine in some cases permits a 50% saving in labor costs. The machine coats plywood, sheet metal, fabrics, rug material, Masonite, tar paper, Fiberboard and other materials that provide a flat surface with a variety of coating materials.

Address: **L. R. Wallace & Co.,** 440 Seaton St., Los Angeles 13, Calif.

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Extra Section



By William D. Perreault

DURING the holiday season we are apt to receive token gifts from people with whom we do business during the year. This year we received an unusual gift from Kenyon & Eckhardt, an advertising agency, and its clients, Ansul Chemical Company and the Industrial Tape Corp. Thought we should report it. Since 1948 this group has adopted one or more children in Europe in the name of various groups of editors. There are four children in this little family who are provided for materially with food, clothing and other necessities and now another is being added. It's a nice thought.

•

In accepting the Collier Trophy on behalf of the helicopter industry, Igor Sikorsky, father of the U. S. helicopter industry, had some old and some new names for the rotorcraft. To the familiar "egg beater" and "infuriated palm tree" titles, Sikorsky added the affectionate term "Guardian Angel," a nickname growing out of its rescue activities in Korea and around the world, and "improviser," a tribute to the helicopter's versatility as a transport vehicle and utility tool.

•

British European Airways has been keeping a close check on "near misses," reported incidents in which their pilots have observed other aircraft flying within 200 yards vertically or 700 yards horizontally from their scheduled flights. The record was put in graph form when there appeared to be a sudden increase in near misses following adoption of a rule which allowed pilots to "come down and have a look" when airport minimums were reportedly below allowable landing minimums. In one year, there has been an 80% increase in reported "near misses" within the United Kingdom. In the first nine months of 1951 there were 87 such incidents. Planes involved in these "near misses" were about evenly divided between civil planes with other civil planes, and civil with military planes.

•

At Washington National Airport we picked up two effective publications of Bendix Radio, a division of Bendix Aviation Corps. One of these, entitled "For Wider Horizons," is a pocket-sized booklet on radio aids and the "radio highways of the air." In a simple manner it explains, in words and drawings, the use of communications and navigation equipment, with special emphasis on personal plane applications. The other item is a four-page folder, "This is Bendix Radio," giving a little history about Bendix and its activities in all phases of electronics. These booklets are doing a worthwhile educational job.

•

An item of equipment on the de Havilland Comet which attracted our attention during our recent visit to the de Havilland plant was the "wipe-off lever," a small but rugged blade extending just below the contour of the inboard engine nacelle, the lowest part of the aircraft in the event of a wheels-up landing. When this lever strikes the ground it automatically sets off the CO_2 bottles, shuts off the fuel valves and cuts the power circuits of the electrical system.

•

Reports from London say the Comet will have a specially designed cabin color scheme to meet the unusual lighting problems at 35,000 to 40,000 feet. A pale blue ceiling will be used to reflect light from the clouds below plus careful toning with blue-grey. Principal light entering the cabin is said to be reflected from the clouds rather than direct light from the sun above. As a plane climbs to these altitudes the light sky-blue atmosphere gets darker and more intense overhead.

Technical News Digest

• **Plaster cores for impeller blade assemblies** are being formed in plastic molds by AiResearch, division of the Garrett Corp. Company says that the new molds have yielded an increase of over 1300 per cent in parts per tool, as compared with molds of dental stone which were previously used. Material used in the new molds is Tool-Plastic, a thermosetting liquid phenolic resin supplied by Rezolin, Inc.

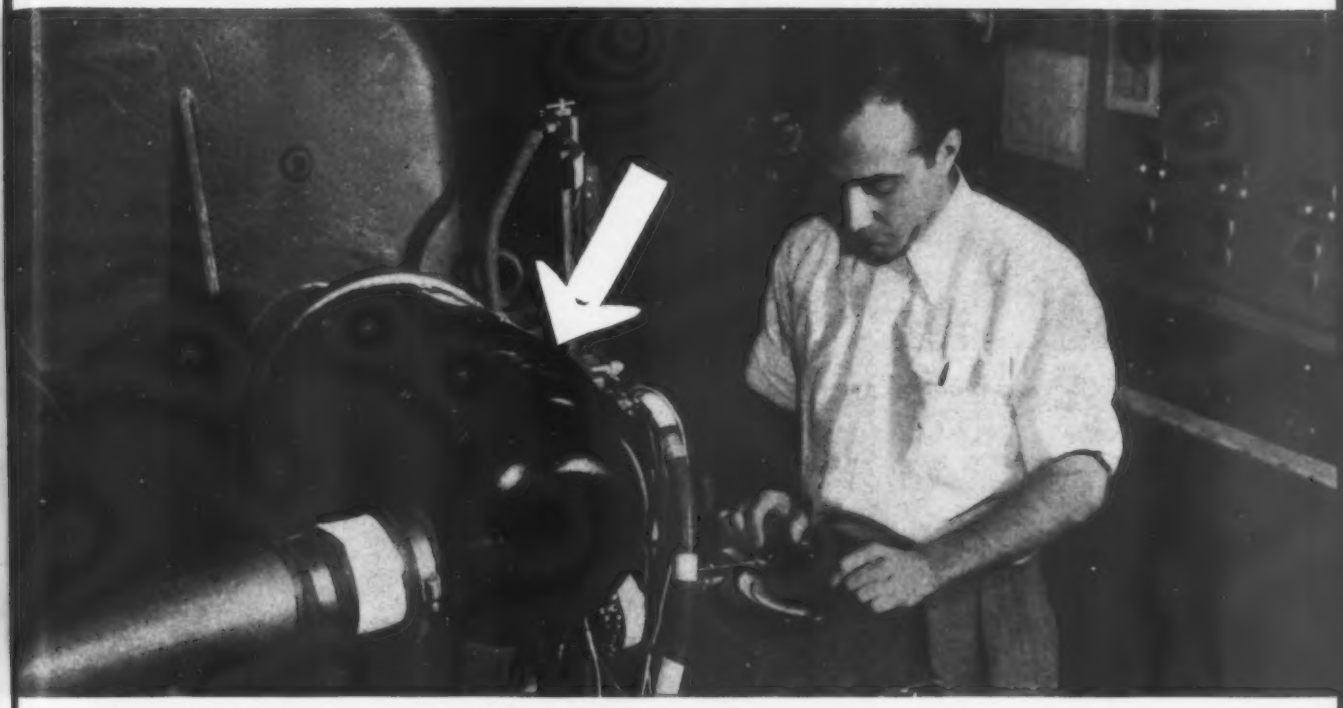
• **A 10-channel, in-flight calibrator** has been developed by the National Bureau of Standards to identify telemetered information from a guided missile in flight. Initial model, designed by L. L. Parker and W. A. Hereth of the NBS guided-missile laboratory and now manufactured by the J. P. Seeburg Co., is said to eliminate many difficulties encountered in calibrators of comparable size and scope.

• **Dr. Leonard M. Greene,** president of Safe Flight Instrument Corp., reports his company is readying prototype installations of pre-stall instruments for 14 different types of British, French, and Italian aircraft. Recently returned from a European tour, Greene says he encountered wide interest in pre-stall devices among European aircraft manufacturers.

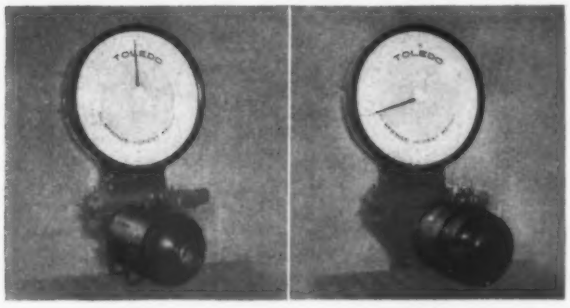
• **An oil system** that will greatly reduce amount of time to get a plane into the air in sub-zero temperatures has been developed by United Aircraft Products, Inc., according to company president, John M. Meyers. Called a diverter segregator finned hopper system, the new development is said to eliminate need of ground heaters to heat the oil system prior to takeoff. Company says it expects orders grossing well into the millions within a very short period of time.

• **International Civil Aviation Organization meeting** in Buenos Aires has drafted a plan to provide for present and future air navigation requirements along international air routes of South America and the South Atlantic Ocean. Among recommendations are: (1) establishment of a network of upper-air radiosonde and radiowind observation stations, operating at levels up to 40,000 feet; (2) reorganization of flight information regions serving South America and the South Atlantic; (3) reorganization of existing search and rescue coordination centers in Brazil and Chile; (4) installation of more instrument landing systems at a number of South American and West African airports; (5) use of meters rather than feet for altimeter settings in the area under study.

LIGHTER, MORE RELIABLE ELECTRIC SYSTEMS WITH
New G-E Alternators

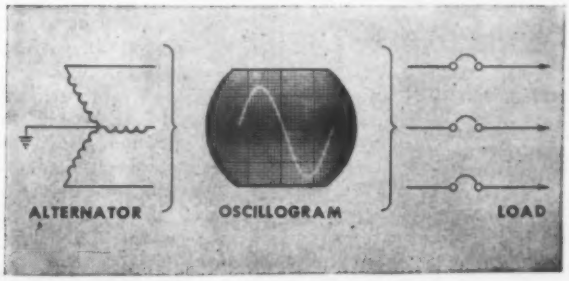


Rugged tests of new a-c generators (arrow) under worse than actual conditions establish their dependability in service. An outstanding feature of these alternators is their 300% short circuit current rating. This provides a safety margin to insure operation of the line clearing devices and gives positive short circuit protection.



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Weight is down 30% with the new alternator, over an equivalent d-c generator. Exciter and slip ring brush wear is negligible at the low exciter currents in a-c machines. Sparking and brush wear of d-c generators under conditions of high altitudes and high power output are eliminated.



Nearly perfect sine wave output of the alternators allows proper operation of electronic equipment demanding a low

300% Short Circuit Current Rating is Feature of New Line

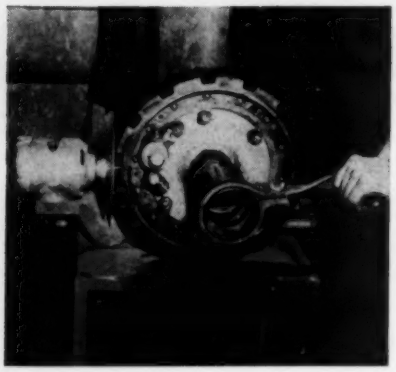
Savings in weight and space plus greater reliability are natural advantages of alternating current in aircraft electric systems. General Electric offers these benefits in a new line of 3-phase, a-c generators to satisfy nearly every combination of engines, airframes, and loads.

Available either wye- or delta-connected in a variety of ratings and speed ranges these alternators meet military specifications MIL-G-6099. Already a large number are on order by airframe manufacturers in addition to quantities being furnished the military services for both fighters and heavier aircraft.

Whether your problem is a-c or d-c, a single instrument or complete electrical systems for a fleet, contact your General Electric aviation specialist, or write General Electric Company, Schenectady 5, N. Y.

GENERAL ELECTRIC

Maintenance-Engineering



A Barrett truck brake grinder has been adapted by **Frontier Airlines** for use in grinding Goodrich expander tube brakes. Instead of mounting the grinder on an axle, as it is intended to be used in truck applications, tube which fits freely into the torque collar of the brake is mounted permanently in the grinder, which is fastened to a table. A handle clamped to the torque collar by means of a thumb screw is used to turn the brake assembly while adjusting the grinder disc.

The whole assembly is placed near an exhaust booth to take away the grinding dust and the operator wears eye protectors while performing the operation. Frontier finds not only that the brake is ground more concentrically in this fashion, but also that the time required for the task is less than when cutting them down on a lathe. Only new brakes are ground, then only enough to remove high spots and give proper clearance in drums, preferably the larger size drums, to keep grinding to a minimum.

✣ ✣ ✣

At Tulsa, Okla., **American Airlines** is using discarded antenna wire for aircraft static ground cables in place of discarded control cables. Principal advantage is that it is coated with polyethylene which prevents cuts and scratches experienced with frayed cable. It also provides some additional safety in that it is easier to see, reduces the hazard of tripping over the cable.

✣ ✣ ✣



A 50% reduction in compass swinging time has been accomplished by the Inspection Department of **Texas Engineering and Manufacturing Co.** at Dallas, Texas on F-47 Thunderbolts. The same idea may well be put to use in some transport and private plane applications. It consists of mirror mounted, in this case, to the pitot mast by spring clamps. This positions the mirror (see photo) so that the man in the cockpit can see the wheel alignment in reference to the compass rose. Formerly, before J. E. Surratt, Jr. of the Inspection Dept. made this rig, a second man was required at the wing tip swinging activities to make this external check of aircraft position on the rose.

✣ ✣ ✣



A walkie-talkie system has been put in use by **Capital Airlines** at Washington National Airport to provide a closer link between operations, maintenance and traffic and keep passengers better informed of flight progress, particularly in the event of delays. The walkie-talkie is used to relay information from the plane on the apron to the dispatch office, to request spare parts from the hangar and thus speed repairs, etc.

To put this system in operation, Capital obtained the first such frequency allocation issued by the Federal Communications Commission for this purpose. The equipment used is made by Motorola operating on three watts and useful within a half-mile.

As presently used, it consists of a permanent installation on the ramp, a desk set in the flight dispatch office and another in the maintenance crew chief's office plus two mobile hand sets for use in and around the plane. The ramp installations use direct current from two six-volt standard automobile batteries, the units being plugged into the batteries of the motor generator power unit.

✣ ✣ ✣

A simple hydraulic fluid dispenser has been designed by E. R. Tiffany, a crew chief with **Mid-Continent Airlines,** using a standard 5-gallon GI can equipped with pump and suitable filters. The improved dispenser, with finishing touches by MCA's engineering department, minimizes the possibility of fluid contamination during servicing.

MCA adapted the GI can specifically for refilling the fluid supply of the Convair 240 pressurization system but found it so versatile that it has since replaced the standard one-gallon can used on the Douglas DC-3's and on the airline's servicing trucks.







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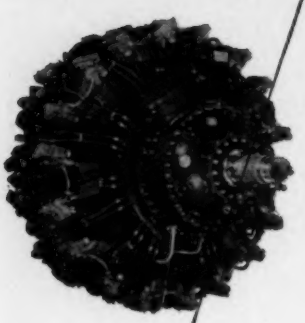
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CAB Warns Non-Skeds on Passenger Ethics

CAB has warned the non-scheduled airlines against improper treatment of passengers, and says it will take enforcement action wherever possible.

Asserting that it has numerous complaints on file against passenger mistreatment, CAB asked cooperation of non-skeds and their groups in:

Establishment of necessary safeguards and exercise of continuing surveillance of activities and practices of employes and ticket agents to assure that services are not misrepresented.

Revision and improvement of procedures relating to reservations, ticketing and handling of passengers.

Acceptance of passengers only from qualified agents with whom the line has written contracts containing appropriate provisions for the protection of the public and adequate provisions for enforcement of such obligations.

Machine to Streamline Trip Insurance Buying

A new-type trip insurance validating machine, soon to be introduced by Tele-Trip Policy Co. of 420 Lexington Ave., New York City, promises to eliminate last-minute passenger and ticket agent delays by the simple device of providing a three-cent stamp with each policy.

Other improved features for Tele-Trip's machine are that:

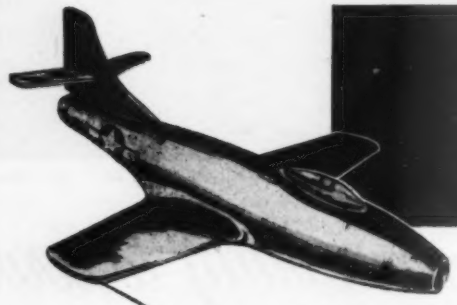
- **it is so small and compact** that it can be placed on the ticket counter at the point of passenger check-in;
- **pocket-size policies,** permit several purchasers to fill out the forms at the same time;
- **policy stubs** are automatically detached and retained by the machine;
- **policies** are self-mailer envelopes;
- **change making and coin handling** are facilitated by a combination coin and token sorter which takes 25 pieces or specially minted tokens valued at $1.25 each, or a combination of both.

Airlines Begin Drive on 'No-Show' Problem

The domestic airlines are about to start an intensive campaign to combat the "no show" problem.

Air Traffic Conference of America has voted to appoint a special three-man committee, the members to be chosen from the airlines. They will speed 90 days working full time to find ways of combating the problem.

"No shows"—persons who make reservations but fail to show up at departure time—are reducing effective civil air lift by some 14%.



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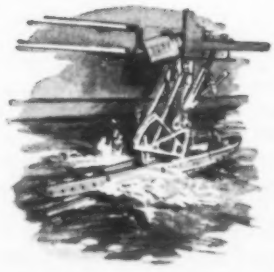


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Delicately instrumented models prove today's dreams for tomorrow's air-sea power at the Experimental Towing Tank, Stevens Institute of Technology.

AN instrument-covered seaplane model knifes through the waters of a Stevens Tech towing tank. A Naval Bureau of Aeronautics researcher pores over plans for a jet-powered, swept-wing flying boat. A Martin engineer makes dreams take wings on his drawing board. And, step by step, planes that combine water-based mobility with land-based speed come closer to reality!

Latest product of seaplane research teamwork, today's advanced Martin P5M-1 Marlins add new sinews to our Navy's anti-submarine forces. Their performance is in the tradition of the history-making Martin seaplane flight to Catalina in 1912, the famous Martin China Clipper, the dramatic rescues of Mariner patrol planes and the record-load-carrying Mars flying boats of World War II.

Today's seaplane research promises to make their jet-powered successors tomorrow even more potent weapons in America's arsenal! THE GLENN L. MARTIN COMPANY, Baltimore 3, Maryland.

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Third-Quarter Local Service Traffic, 1950-51, Compared

Airlines	Revenue Passengers	Revenue Passenger Miles	Available Seat Miles	Passenger Load Factor %	Mail Ton Miles	Express Ton-Miles	Freight Ton-Miles	Total Ton-Miles Rev. Traffic	Available Ton-Miles Flown	% Available Ton-Miles Used	Revenue Plane-Miles	Scheduled Miles	% Scheduled Miles Completed
All Amer.	71,397	10,218,000	19,776,000	51.67	16,018	38,024	. . .	1,053,725	2,260,102	46.62	941,709	925,577	98.11
1950	53,634	7,547,000	18,986,000	39.75	10,233	31,542	. . .	780,870	2,169,306	35.99	904,128	911,514	98.49
Bonanza	7,954	2,035,000	4,953,000	41.09	1,855	812	5,019	190,611	555,881	34.29	240,640	235,662	99.29
1950	5,474	1,387,000	4,928,000	28.14	1,409	680	2,308	139,534	530,202	26.32	234,803	235,068	98.67
Central	11,782	1,539,000	7,546,000	20.39	5,495	2,434	4,572	159,871	872,528	18.32	363,576	357,398	99.09
1950	3,201	354,000	1,424,000	24.86	3,951	. . . .	8,000	16,217	149,922	30.83	479,374	479,136	98.89
Empire	13,300	2,488,000	6,836,000	36.39	5,474	4,786	. . .	238,484	743,924	32.06	325,498	314,088	99.80
1950	14,488	2,581,000	6,871,000	37.56	5,453	5,778	. . .	249,845	678,037	36.85	327,238	289,810	99.99
Frontier	31,906	8,750,000	23,801,000	36.76	36,375	20,232	86,787	1,022,469	2,384,101	42.89	1,196,184	1,172,068	99.80
1950	21,684	5,788,000	22,023,000	26.28	19,659	16,226	50,938	668,584	2,206,690	30.30	1,100,829	1,102,968	99.44
Lake Cent.*	9,904	1,942,000	6,843,000	28.38	3,305	16,548	. . .	194,412	807,035	24.09	348,943	326,784	98.31
1950	4,161	1,279,000	4,028,000	31.75	1,239	6,940	991	133,114	438,486	30.36	290,184	236,992	95.87
MCA**	12,360	2,574,000	5,272,000	48.82	6,369	10,199	9,362	271,751	598,620	45.40	249,425	249,136	99.59
1950	389	88,000	222,000	39.64	273	334	498	9,493	25,428	37.33	10,595	10,600	99.95
Mid-West	766	118,000	835,000	14.13	2,788	. . . .	. . .	12,378	91,940	13.46	208,957	224,042	93.27
1950	2,037	304,000	1,622,000	18.74	4,489	. . . .	. . .	28,937	178,496	16.21	405,674	452,748	89.60
Ozark	16,781	2,770,000	13,551,000	20.44	6,729	13,572	. . .	272,471	1,346,156	20.24	633,432	638,307	98.32
1950***	117	18,000	68,000	26.47	136	. . . .	. . .	1,922	6,937	27.71	4,505	6,040	68.33
Piedmont	57,378	13,491,000	24,535,000	54.99	16,482	19,102	29,630	1,355,428	2,803,944	48.34	1,168,310	1,145,630	99.82
1950	36,574	7,549,000	21,547,000	35.27	13,951	25,886	41,146	809,560	2,460,561	32.90	1,026,067	1,030,164	99.33
Pioneer	43,475	11,697,000	25,372,000	46.10	26,050	8,852	36,429	1,246,149	2,537,497	49.11	1,057,291	1,000,889	99.82
1950	34,920	9,964,000	23,687,000	42.06	24,170	13,116	43,245	1,081,734	2,371,756	45.61	988,236	955,098	99.81
Robinson	29,631	5,111,000	9,392,000	54.42	6,678	14,138	9,885	496,032	1,045,680	47.44	450,522	394,847	97.06
1950	16,307	2,493,000	6,457,000	38.61	5,806	12,235	8,261	243,914	602,075	40.51	321,355	319,140	96.45
Southern	27,374	4,840,000	16,882,000	28.67	19,137	18,675	. . .	499,871	1,524,389	32.79	804,480	798,376	99.89
1950	9,988	1,695,000	9,285,000	18.25	10,047	10,066	. . .	180,100	837,618	21.50	442,132	442,520	99.61
Southwest	38,564	7,973,000	14,059,000	56.71	14,419	11,256	25,299	850,885	1,606,677	52.96	669,449	634,283	98.23
1950	39,230	7,560,000	13,628,000	55.47	11,671	14,071	33,739	817,713	1,557,435	52.50	648,931	618,811	98.11
Trans-Texas	20,048	4,411,000	15,735,000	28.03	12,303	7,243	16,221	478,400	1,573,956	30.39	749,337	747,334	99.94
1950	17,847	4,039,000	16,292,000	24.79	13,028	7,799	15,440	441,509	1,629,308	27.10	775,861	769,192	99.97
West Coast	25,491	3,747,000	7,730,000	48.47	2,194	2,794	8,124	347,779	732,443	47.48	370,921	368,848	97.58
1950	24,348	3,530,000	7,464,000	47.29	1,668	3,478	6,938	327,011	767,078	42.63	355,021	355,370	98.58
Wiggins	1,262	115,000	462,000	24.89	370	533	. . .	11,157	50,774	21.97	120,266	143,107	80.80
1950	1,166	109,000	556,000	19.60	455	. . . .	. . .	10,306	55,694	18.50	139,496	173,658	80.19
Wis. Cent.	33,677	5,493,000	11,926,000	46.06	16,627	33,894	. . .	570,543	1,231,802	46.32	567,946	570,676	99.02
1950	14,642	2,429,000	4,589,000	52.93	11,033	14,007	. . .	259,223	493,688	52.51	544,502	550,344	98.94
TOTALS	453,050	89,312,000	215,506,000	41.44	198,668	223,094	231,328	9,272,416	22,767,449	40.73	10,466,886	10,247,052	98.75
1950	300,207	58,764,000	163,677,000	35.90	138,671	162,158	211,554	6,229,586	17,159,317	36.30	8,998,931	8,939,173	98.14
Helicopter Mail Service													
HAS	. . .	. . . .	. . . .	. . .	6,662	. . . .	. . .	6,662	16,629	40.06	86,088	88,434	97.35
1950	. . .	. . . .	. . . .	. . .	5,459	. . . .	. . .	5,459	13,869	39.36	85,682	88,934	96.34
Los Angeles	. . .	. . . .	. . . .	. . .	8,446	. . . .	. . .	8,446	20,139	41.94	52,109	55,143	93.26
1950	. . .	. . . .	. . . .	. . .	10,479	. . . .	. . .	10,479	34,769	30.14	86,666	90,029	96.26

* Formerly Turner Airlines.
** Figures cover local service segment (route 10b) awarded MCA by CAB in the Parks Air Lines Investigation Case. Revenue operations began over this route September 20, 1950.
*** Began operations September 20, 1950.
NOTE: Figures include both scheduled and non-scheduled operations.

Local Service Traffic Gains in 3rd Quarter

INCREASES in all categories of traffic were again shown by the 18 local service airlines during the third quarter of 1951 with a substantial 48% gain in total ton-miles of revenue traffic, according to reports filed with the Civil Aeronautics Board.

The local lines, in the July-August-September period, carried 453,050 revenue passengers a total of 89,312,000 revenue passenger-miles while generating 215,506,000 seat-miles for an average passenger load factor of 41.44%. This compares with 300,207 passengers flying 58,764,000 miles in the same three-month period of 1950 while 163,677,000 seat-miles were available with a resulting load factor average of only 35.9%.

Passenger load factor gain was over 15%; number of revenue passengers carried was up 50.9%; total revenue passenger-miles rose 51.9%; available seat-miles increased by 31.6%.

The third-quarter operating figures for the local lines reveal mail ton-miles at 198,668 compared with 138,671, for an increase of 43.2%, while express ton-miles climbed from 162,158 in the 1950 third quarter to 223,094 for the same period in 1951,—a gain of 37.5%. Freight ton-miles flown were up only slightly, from 211,554 to 231,328 or an improvement of less than 10%. Total ton-miles of revenue traffic came to 9,272,416 compared with 6,229,586 and revenue plane miles climbed 16.3% from 8,998,931 flown in July-August-September 1950 to 10,466,886 in the same three months this year.

All-American Airways' 71,397 passengers amounted to better than 15% of the total passenger figure for the 18 locals and represented a 33% boost over AAA's third-quarter passenger traffic a year ago. Carrier showing the largest percentage gain in revenue passengers for the 3rd quarter this year was Central Airlines with an increase of 268%.



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An important corps of fliers in America today are the businessmen who fly their own or company planes.

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Airline Commentary



By Eric Bramley

DURING our recent trip to Colombia, AVIANCA officials told us that Colombians who visit the U. S. probably hold world records when it comes to the amount of "baggage" they carry back to their native land. When we checked in at New York for the flight south, we thought we had a pretty heavy, good-sized suitcase. But **Juan Ucros,** AVIANCA's New York representative, seemed somewhat puzled that this was all we were carrying. Glancing around the terminal, we saw what he meant. Suitcases, hatboxes, cartons, paper sacks, and other odds and ends were piled high.

We learned that some of the Connie flights average 125 lbs. of baggage per person. Colombians, with an eye for U. S. products, go to New York with an empty suitcase inside an empty suitcase inside an empty suitcase, and return with all of 'em full—plus more.

One flight had 36 passengers (with more waiting in Miami) and the airline couldn't get all the baggage aboard. Announcement was made that some baggage would be shipped later. This caused no end of screaming, because it seems that Colombian customs is quite lenient when you're carrying purchases with you, but they're tough on stuff shipped in separately.

Anyway, AVIANCA hopes it has the solution. Its Connies will shortly start to carry Speedpaks.

•

Jennings Randolph, assistant to the president of Capital Airlines, tells us that he has run across an expression that he hadn't heard before. He got into a taxi in Atlanta, Ga., to go to the airport. The driver leaned out the window and yelled to the cab starter: "Got a trip to the airpatch," Jenning says you can add that descriptive word to airport, airfield, airpark, air base, etc.

•

The new IATA regulations prohibiting free transportation by member carriers caused no little international crisis in Europe a few months ago.

Seems that it was on French Bastile Day, a big day of celebration every July in France. And a customs inspector (we'll call him Jacques) on the night shift at Le Bourget had been celebrating very joyously this independence day.

Jacques arrived for duty at Le Bourget feeling no pain, but after all, work was work. In due course a night Scandinavian Airlines System plane came in from Copenhagen, and it was this inspector's job to inspect the aircraft. He entered it, did his inspecting, then sat in a seat to rest his celebration-weary bones. He promptly fell into a deep sleep.

Shortly thereafter, the SAS plane was prepared for an after-midnight departure. Passengers were loaded. The crew boarded. Nobody thought to investigate the uniformed man sound asleep in a rear seat. The plane took off for Copenhagen, where it arrived at about 6 o'clock on a Sunday morning.

Somebody awakened Jacques and said it was time to get off. In the early sunlight he discovered that this wasn't Le Bourget. He began waving his arms, spouting French by the yard, and said he wanted to be at work at Le Bourget and what was this place called Denmark.

It being early Sunday there was no one at the airport who understood or spoke French. Attendants gave the continuously talking, not-too-sober Jacques some coffee, and in about three hours the airport people got someone to listen to his tale of woe. Jacques made it clear that he was on duty at Le Bourget and had no liking for this Copenhagen in this country of Denmark.

Danish authorities told SAS they would have to take Jacques back to Le Bourget. But the SAS station manager put his foot down: "Absolutely nothing doing. It's against IATA regulations to carry anyone free." By noon the matter had gone up the scale of management, but nobody would authorize poor Jacques' return. IATA is IATA.

Upshot of the story is that it was three days before the combined efforts of Danish airport and civil aviation authorities and SAS could arrange his trip back to Paris. The unknown part of the story is just what the inspector's chief told him on his return.

Moral: Never sleep off a gay celebration in an airplane.

Airline People

ADMINISTRATIVE

Alexander G. Hardy, exec. ass't to the president of National Airlines, has been appointed part-time consultant to the Economic Stabilization Agency.

Erle Cocke, Jr., ass't to the president of Delta Air Lines and former national commander of the American Legion, is now a consultant to the Department of Defense.

Claude G. Adams, Braniff's secretary-treasurer, elected president of the Air Line Treasurers' Conference.

Ian A. Gray named ass't to the president of Canadian Pacific Air Lines. He



Cotterell



Gray

was formerly general supt. of engineering.

H. C. Cotterell named gen'l mgr. purchasing and stores by Trans-Canada Air Lines. He was formerly dir. of research and economic control for TCA and is a director of AITA.

F. J. Wilt has become ass't director of labor relations for Northwest Airlines.

Victor T. Raeburn appointed mgr. of public relations and advertising for Air France's North American and Caribbean division.

TRAFFIC & SALES

Southern has named **Harry A. Schroeder** traffic and sales rep. . . . **Walter H. Zeiser** is now agency and interline sales mgr. for Pacific Northern. . . **Frances A. Heines** has become international cargo sales mgr. for Chicago and Southern. . . . **Harold Woodman** named by Bahamas Airways to newly created post of charter mgr..

American has promoted **Frank Beach** and **Thomas J. Harris** mgr.-cargo traffic and mgr.-cargo-sales, respectively.

Robert C. Lord appointed d.s.m. at New York for U. S. Airlines and **John Barrett** assumes similar duties at Miami.

OPERATIONS-MAINTENANCE

Ozark's new supt. flight operations is **Capt. Julian A. Wiggins** . . .**Capt. Albert F. Olsen** appointed eastern regional chief pilot for Northwest . . . **Capt. A. P. W. Cane** has been named operations supt. for the BOAC Comet Unit . . . **Capt. Irving "Sam" Elliott,** Hawaiian Airlines' supt. of flight operations and Hawaii's Number One commercial air pilot, has retired after 22 years of active service. His successor is **Capt. James Hogg.**

J. M. Jones, check flight engineer at San Francisco for TWA, appointed supvr. of flight engineers for the western region.

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Lockheed

BOOSTS PROFITS FOR AIR CARGO OPERATORS

Air freight traffic has increased 467% since 1946, continues to grow at a rapid clip. During this period, Lockheed engineers worked steadily on the problems created by this fast-growing business and have come up with much-needed developments.

Some of these developments were recently previewed by airline executives and military officials in a 3-day seminar held at Burbank. It was revealed that Lockheed (1) has a new Super Constellation cargo plane designed to reduce freight-carrying costs, and (2) has thoroughly analyzed the problems of loading, tying down, unloading and handling of freight at airports. One exhibit was Lockheed's mechanically operated scale model of "the ideal air cargo terminal," which has attracted national attention.

The new Super Constellation cargo plane is the most highly mechanized freight carrier yet designed. Some of its outstanding advantages:

1. Solves major interior handling problems with three exclusive features: an all-metal (magnesium) floor, a built-in mechanical conveyor, and a portable, airborne cargo elevator of 10,000 pounds capacity.

2. Carries "more cargo farther and faster" than any other airplane.

3. Increases carrying capacity, both in total floor space and weight.

4. Guarantees greater profits because of its low direct operating cost—actually 4.9 cents per ton-mile.

The Super Constellation is the result of a decade of air cargo research at Lockheed. It combines the experience and dependability of the world-famous Constellation transport with greater size and greater operating economy.

It is 18.4 feet longer than the standard Constellation.

It will carry 38,500 pounds, or nearly 20 tons, across the nation.

It will carry over 25,000 pounds, non-stop from New York to Paris.

It has net usable space totaling 5,568 cubic feet, equal to nearly three standard railroad refrigerator cars.

And its metal watertight floor permits much heavier load limits (300 lbs. per sq. ft. or 1000 lbs. per running ft.), higher density cargo and a wider variety of cargo.

Military versions of this airplane already have been ordered in large numbers for both the Air Force and the Navy.

Airport News Digest

Development Near Airports: Factories are beginning to appear on a large scale on the so-called ghost lands surrounding airports. There are approximately 70 different plants within a half-mile radius of the Los Angeles International Airport, and about 70% of them have sprung up since World War II, according to Woodruff DeSilva, airport manager. There were only two or three plants near the Lambert-St. Louis Municipal Airport before the war but now there are six or seven times that number in the vicinity. New industrial facilities have appeared recently around airports at San Francisco, Cleveland, Dallas, and Phoenix. According to DeSilva, proximity to airports no longer destroys land values. At St. Louis, for example, prices of acreage near the Municipal Airport have tripled since the war. Port of New York Authority is conducting a nation-wide survey investigating what other communities have done to promote industrial development near airports, with a view to adopting a long-range master plan to induce new industry to settle near New York's airports.

Dangerous Assignment: **When the California Association of Airport Executives called their semi-annual meeting to order in Santa Monica, this was the casualty report on program speakers and participants: Vern Tyler, manager of Santa Monica Municipal Airport and president of the association, rushed to hospital for appendicitis operation; Don Smith, manager of Sacramento Municipal airport, bedded by pneumonia; Joe Hicks, CAA, seized with a heart attack; W. J. Fox, director of Los Angeles County Airports, taken to hospital for check-up; Norman Larson, chairman of the California Aeronautics Commission, down with flu; Harrison Mecham, manager of Santa Rosa Airport, had roof of hangar blown off by a high wind.**

TERMINAL BUILDINGS, AREAS

• **Bids are being received** for a $1,000,000 temporary extension at Miami International Airport. Plans call for construction of three 600-foot finger piers to be attached to an expanding building. Occupancy is expected to coincide with completion of three 9,400-foot runways.

• **New administration building** costing $239,000 has been completed at the New Bedford (Mass.) Municipal Airport.

• **Construction has started** on the San Francisco International Airport's new $6,900,000 terminal building. Plans include 1,178 reinforced concrete beams with steel casings and H-beam tips. They range from 80 to 130 feet in length and require the biggest pile driver ever used in the San Francisco Bay area, a driver 115 feet high and having a five-ton driver of the automatic steam type.

• **A new $231,000 administration building** has been completed at Rosecrans Field, St. Louis, Mo.

RUNWAYS, OTHER PAVING

• **Pennsylvania Aeronautics Commission** has authorized $65,000, one-fourth of a total contemplated outlay of $260,000, for construction of a mile-long runway at Graham Field, Butler, Pa.

• **Construction of a hard-surface runway** at Cuyahoga County Airport, Richmond Heights, O., will be undertaken as first step in further development of the airport. Project will cost $3,500,000.

• **Expenditure of $124,000** of city funds for extension of the main runway at Tucson (Ariz.) Municipal Airport has been approved by the city council. Runway is to be extended to 12,000 feet or nearly double its present length.

LIGHTING

• **Bids have been advertised** for construction of a field-lighting system at Gen. Carl A. Spaatz Field, Reading, Pa. New installation is expected to cost in the neighborhood of $130,000.

• **Sum of $40,000** was realized by the state of Rhode Island in a recent sale of 34 houses condemned to make way for a new approach-lighting system to be installed at the Hillsgrove (R. I.) State Airport.

MISCELLANEOUS

• **Ponca City (Okla.) Airport Management Board** has passed a motion calling for the city commissioners to call a special bond issue election to raise $200,000 for expansion of the Ponca City Municipal Airport. The amount would be matched by $212,000 in Federal funds.



REMOVABLE HOPPER in Piper agricultural plane carries 18 cubic feet of dust or 110 gallons of liquid.

New Piper Sprayer-Duster in Production

P-18-A agricultural plane, modification of Super Cub, can cover 220 acres of crops in 45 minutes.

THE new Piper Aircraft convertible sprayer-duster agricultural airplane, the PA-18-A, which has just gone into production at Piper's Lock Haven, Pa. plant, is capable of spraying up to 220 acres of crops in 45 minutes with a single load of chemicals. Plane's design is the result of more than 300 hours of test flying with experimental designs and is a development of the 125-hp. Piper Super Cub. Principal modification has been in the fuselage structure which is built in the new plane to accommodate a large tank suited to hold either liquid or dust. The fuselage tank has a volume of 18 cubic feet or an effective capacity of 110 gallons.

Spray Booms

Spraying is done by two streamlined booms, each equipped with 12 spray nozzles. Installed under each wing, the nozzles provide more than 50 feet of coverage. Adjustment of the nozzle orifice and pump pressure provides rates of flow from one-half to five gallons per acre. The duster version uses both slots and vertical plates for coverage, providing about the same swath as the sprayer. Double agitators at the base of the power hopper and an air-driven propeller provide uniform flow.

Performance

The new plane is said to have an extremely fast takeoff because of its relatively high power and light weight. Its landing speed is low but, because of good stability at slow speed, controllability is positive. Load-carrying capacity is high, the company claims, and there is no mushing tendency during pull-ups at high loads.

Feature of the spray booms slung under the wings is their ability to swing back and up if they strike an object on the ground. Some of the shock of contact is thus absorbed, preventing structural damage to the airplane and to the dispersal equipment. Landing gear has sharp leading edges to cut wires which might otherwise turn the plane over or damage the landing gear.

PIPER PA-18-A SPECIFICATIONS

Performance
At 1,500-lb. Gross Load

Top Speed (mph)	125
Cruising Speed (75% power mph)	110
Stalling Speed (mph)	38+
Takeoff Run (ft.)	210+
Takeoff (over 50 ft. barrier) (ft.)	510+
Landing Roll (ft.)	300+
Landing Distance (over 50 ft. barrier) (ft.)	600+
Rate of Climb (ft./min.)	1,000
Service Ceiling (ft.)	19,500
Absolute Ceiling (ft.)	21,700
Cruising Range (75% power)	250
Cruising Range with Optional Tank	500





SPRAY BOOMS under wings of P-18-A (left) swing back if hit; double-gated Venturi on landing gear (right) covers a wide swath.

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The Washington View

By Vera Foster

CAA's proposed regulation, which would have required the renewal of airman certificates each two years, named an expiration date for certificates, and required of commercial pilot applicants several hours of instrument flight training, has been shelved due to the adverse tone of comments received by the CAB.

Regulations governing these items will remain "as is," CAA states. The instrument flight time requirement for commercial pilots would have brought U. S. pilots up to ICAO international standards. Certificates endorsed to show such instrument experience will be used by commercial pilots flying international routes where ICAO standards may be required.

•

The Aeronautical Training Society announces that two new member flight schools have been added to the ATS roster. They are California Eastern Airways School operating at Columbus, Miss., and the Garner Aviation Service School of Bartow, Florida.

Principal problems of large contract flight training schools nowadays, ATS tells us, are the lack of adequate housing for school personnel and the scarcity of aircraft parts.

Standardized bookkeeping procedures as well as smart new instructor uniforms are now in effect at the nine USAF civilian contract flight training schools.

•

Piper Aircraft Corporation has sold about fifty Piper Pacers with simplified, no-rudder-pedal control systems with the floor free of rudder pedals. Pacers are available with simplified controls at the same price as with standard controls. Purchasers simply specify the type they want.

Pacers equipped with rudders, we understand, are simplified control aircraft but the rudders can over-ride the system should the pilot so desire, or he can fly it without using the rudders, whichever he prefers.

Piper seems to have found the answer to the long-argued question of whether to buy a two-control or three-control ship.

•

All Ohio aircraft must register with the Ohio Aviation Board and pay an Annual Ohio License Tax, effective January 1, 1952.

This tax will be based on the seating capacity of the plane and will supersede all other taxes on ownership of aircraft.

•

Many operators who find that flying has dropped off in their vicinities, or that the weather has slowed down private and executive flying, are looking for business with local factories working on government contracts.

Even modest aircraft shops can turn out parts for the many pieces of equipment now being ordered by the military. During World War II, flight schools which were forced to stop flight operations turned to this profitable type of "sub-sub-contracting."

•

Bob Wilson of the Spartan School of Aeronautics has completed work on an employe manual which gives standard operating procedures for contract flight schools.

Such information as the type of uniform to be worn, accident reporting, how to obtain supplies, rules, parking facilities, etc. is included. The manual is flexible in order that contract schools in different portions of the country may adapt it to local circumstances.

All nine civilian basic flight schools sponsored the booklet. It is intended as a supplement to military manuals to acquaint the approximately 600 employes of each school with SOP's.

•

NATA's Executive Director Charles Parker told us that his swift sweep of the South opened his eyes considerably. Everyone had been bringing in such sad stories of "no business, fields closing, etc." that it came as a surprise to Parker when he found many of the operators with planes lined up waiting at the gas pits and almost more business than they could handle.

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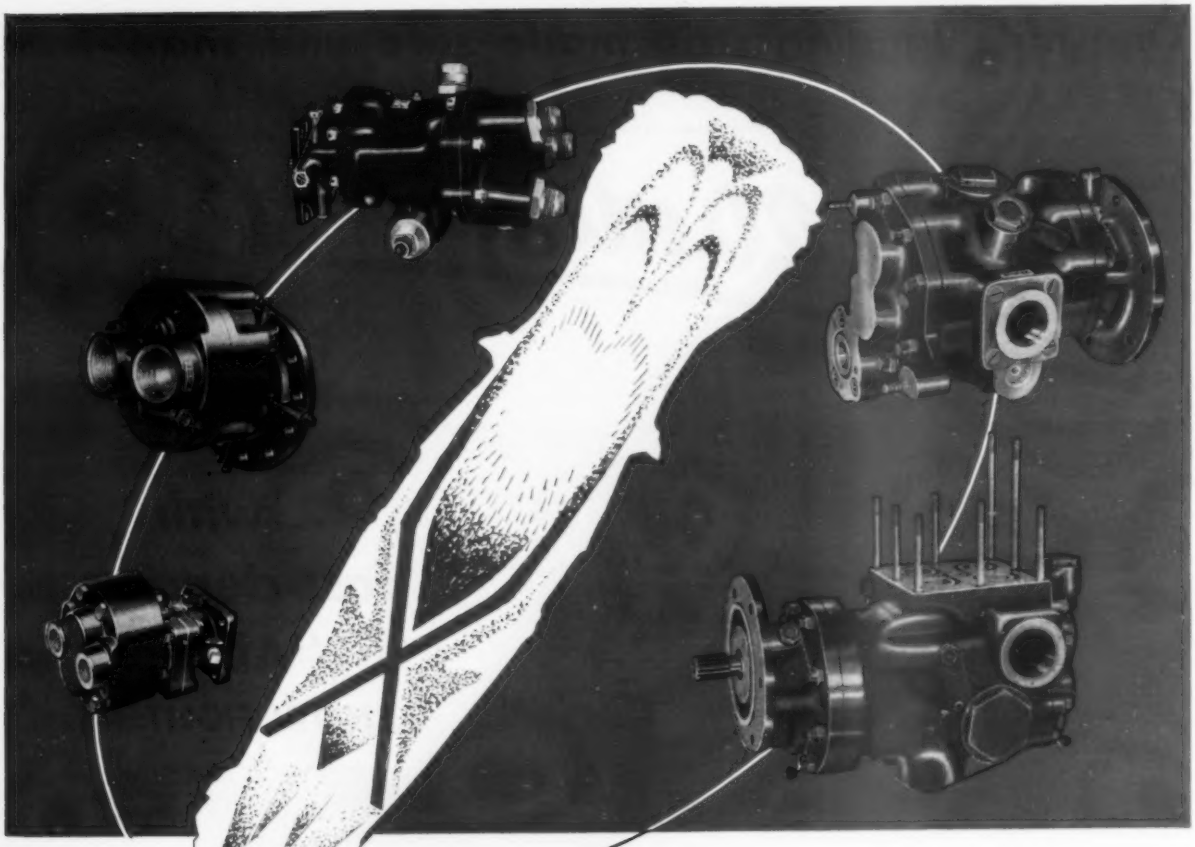
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Comet Cockpit Check-Off

EARLY reports on jet transport operations have indicated that pilots will find their jobs simpler and easier. The following checklist for the de Havilland Comet jet transport, the most recent check in use by British Overseas Airways Corp. crews, may do much to show differences in pilot techniques under varying operating conditions.

Before Starting Engines

	Crew Member	Reply/Action
1. External & Internal Inspection.	E/O.	External & Internal Inspection complete.
2. Covers & Pins checked.	E/O.	3 Pitot covers, 3 Locking Pins.
3. Oxygen.	E/O.	Oxygen checked and ON.
4. Ground Power.	E/O.	ON, voltage Bus . . Battery.
5. "Seat Belts" & "No Smoking" signs ON.	C.	Signs ON.
6. Red Pump ON.	F/O.	Red Pump ON.
7. Parking Brake ON.	C. F/O.	Brake ON. Pressure at wheels . . .
8. Red Pump OFF.	F/O.	Red Pump OFF. Pressure normal.
9. Undercarriage lever DOWN.	C.	Undercarriage DOWN.
10. Flaps up, Airbrakes OFF.	F/O.	Flaps up, airbrakes OFF.
11. Instrument Switches ON.	E/O.	Instruments checked ON.
12. Change engine instrument inverters.	F/O. F/O.	Inverters changed. Instruments checked.
13. Warning Lights.		
(a) Undercarriage.	F/O.	3 green, change, checked, set day/night.
(b) Undercarriage doors.	F/O.	1 red, set day/night.
(c) Undercarriage Light.	F/O.	Set day/night.
(d) Flow warning.	F/O.	2 green, 2 blue, 1 red, 1 yellow.
(e) Pressure warning.	F/O.	2 blue system, 2 yellow.
(f) A.C.	F/O.	2 red, set day/night.
(g) Alternators.	E/O.	4 red, set day/night.
14. Blue warning Horn.	C.	Checked and OFF.
15. Fire Warning Lights and Bell.	C.	Checked.
16. Reset Pedestal Lights.	E/O.	Reset.
17. Controls on emergency.	F/O.	Controls on emergency.
18. Yellow Pump ON.	F/O.	Yellow pump ON, flow and pressure. Warning lights OUT.
19. Flying Controls on Yellow.	C.	Flying Controls checked.
20. Yellow Pump OFF.	F/O.	Yellow Pump OFF.
21. Fuel contents.	E/O.	Contents . . . kgs. Crossover checked.
22. Tank cocks.	E/O.	ON, indicators green.
23. Crossfeed.	E/O.	NORMAL.
24. Flowmeters.	E/O.	Zero.
25. "B" Inverter ON.	E/O.	"B" Inverter ON.
26. Ganged Switches ON.	E/O.	Ganged Switches ON.
27. Check Instruments	C. & F/O.	Instruments erecting.
28. Change to "A" Inverter.	E/O.	"A" Inverter ON, "B" OFF.
29. Auto Pilot.	C.	Auto Pilot checked.
30. VHF & intercomm ON.	F/O. R/O.	V.H.F. ON. Intercomm ON.
31. Check Intercomm.	Crew.	Check Intercomm.
32. Radio Check.	R/O.	Radios checked. ADF's remote.
33. Journey log & Papers.	N/O.	Checked aboard.
34. VHF clearance.	F/O.	Clearance obtained, Altimeter set.
35. Nav. Lights.	F/O.	Nav. Lights ON/OFF.

Starting Engines

1. Throttles CLOSED.	F/O.	Throttles CLOSED.
2. Isolation Switches NORMAL.	F/O.	Isolation Switches NORMAL.
3. Cockpit to Ground.	C. Ground	Ready to start. Ready to start, fire exts. in position.
4. Starter Master Switch ON.	C.	Starter Master Switch ON.
5. Low & High Pressure Cocks ON.	E/O.	Low & High Pressure Cocks ON.
6. Ready to start.	C.	Selects and starts engines.
7. Flying controls on Green.	C.	Flying Controls checked on Green.
8. Change to NORMAL.	F/O.	Changed to NORMAL.
9. Flying Controls on Blue.	C.	Flying Controls checked on Blue.
10. Booster Pumps ON.	E/O.	Booster pumps ON.
11. Battery Switch ON.	E/O.	Battery ON.
12. Alternators ON.	E/O.	Alternators ON.
13. Remove Ground Power.		Power and Intercomm. Out.
14. Idling R.P.M., J.P.T., R.B.T., oil temp. and pressure.	F/O.	Normal.
15. Starter Master Switch.	C.	Starter Master Switch OFF
16. Check Gyro Compass.	F/O.	Compass checked.
17. Zero Reader checked.	C.	Zero Reader checked.
18. Red Pump ON.	F/O.	Red Pump ON.
19. Door Warning light.	F/O.	Doors locked.
20. Chocks.	C.	Signals Chocks away.
21. Fan.	E/O.	Fan as desired.

Before Takeoff

1. Trim Controls.	C.	All trims set.
2. Flaps 15 deg.	F/O.	Flaps 15 deg.
3. Airbrakes OFF.	F/O.	Airbrakes OFF.
4. Pitot heaters ON.	E/O.	Pitot Heaters ON.
5. Blue Warning Horn ON.	C.	Warning Horn ON.
6. Gyro Compass checked.	F/O. C.	Gyro Compass checked. Switch to Captain. Gyro Compass checked.
7. Flying Controls on Blue.	C.	Flying controls checked.
8. Hydraulic Pressure.	F/O.	NORMAL.
9. Windows closed.	C. & F/O.	Windows closed.
10. Runway check.	N/O.	Maximum corrected weight.
11. Landing Lights UP and OFF.	C.	Landing Lights UP and OFF.
12. Booster Pumps ON.	E/O.	Outer & Inner tanks booster pumps ON.
13. Check Fuel Pump Solenoids.	F/O.	Solenoids checked, Isolation Switches to NORMAL.
14. (At Full Throttle) Isolation Switches to 'ISOLATE'.	F/O.	Isolation Switches to 'ISOLATE'.
15. Check engines for takeoff.	E/O & F/O.	Engines checked for Takeoff.

After Takeoff

1. Undercarriage.	F/O.	Undercarriage and doors locked up.
2. Isolation Switches Normal.	F/O.	Isolation Switches NORMAL.
3. Red Pump OFF.	F/O.	Red Pump OFF.
4. Landing lamps.	C.	Landing lamps UP and OFF.
5. Flaps.	F/O.	Checked UP.
6. Climbing R.P.M.	F/O.	Checked 9750 R.P.M.
7. "Seat Belts" & "No Smoking" signs OFF.	C.	Signs OFF.

Field Approach

1. Fuel Contents and Landing Weight.	E/O.	Contents . . . Weight . . .
2. "No Smoking", "Return to Cabin", and "Seat Belts" signs ON.	C.	Signs ON.
3. Altimeter.	C. F/O.	Altimeter set. Altimeter set.
4. Red Pump ON.	F/O.	ON, Pressure Normal
5. Brakes tested.	F/O.	Pressure at Wheels.
6. Parking Brake OFF.	C.	Parking Brake OFF.
7. Pressure at Wheels.	F/O.	Pressure at Wheels Zero.
8. Cabin Hot Air Valve.	F/O.	Valve to "Feet OFF".
9. Air Brakes?	F/O.	Selects Air Brakes OFF.
10. Flaps 15 deg?	F/O.	Selects and checks 15 deg.

Landing

1. Undercarriage down?	C. F/O.	Orders Undercarriage down. Selects u/c. down.
2. Red Pump.	F/O.	Red Pump checked ON.
3. Undercarriage check.	F/O.	3 Green lights and mechanical indicator down.
4. Safety Valve.	E/O.	Opening.
5. Booster Pumps.	E/O.	Booster Pumps ON.
6. Flaps.	F/O.	Selects flap as ordered.



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Willeva Morley
Mid-Continent Airlines
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Gerry Dennis
Braniff Airways, Inc.
Kansas City-Oklahoma City
December 13, 1939



W. H. "Gabe" Fitzgerald
Braniff Airways, Inc.
Kansas City-Oklahoma City
December 13, 1939



R. E. "Bob" Hedberg
Braniff Airways, Inc.
Oklahoma City, Okla.
December 14, 1939



Alfred "Al" Anderson
Braniff Airways, Inc.
Oklahoma City, Okla.
December 14, 1939



Rose (Mrs. C. E.) Beard
Braniff Airways, Inc.
Oklahoma City, Okla.
December 14, 1939



Gerry (Mrs. Bill) Beattie
Braniff Airways, Inc.
Oklahoma City, Okla.
December 14, 1939



Jeanne Braniff
Braniff Airways, Inc.
Oklahoma City, Okla.
December 14, 1939



B. M. "Benny" Turner
Daily Oklahoman
Oklahoma City, Okla.
December 14, 1939



Bess Thurman Braniff
(Mrs. Thomas E.)
Oklahoma City, Okla.
December 14, 1939



Betty Baughman
Oklahoma City Times
Oklahoma City, Okla.
December 14, 1939



Irene (Mrs. Claude) Adams
Braniff Airways, Inc.
Oklahoma City, Okla.
December 14, 1939



Helen (Mrs. Bob) Hedberg
Braniff Airways, Inc.
Oklahoma City, Okla.
December 14, 1939



Ralph S. Johnson
Douglas Aircraft
Oklahoma City-Dallas
December 14, 1939



R. L. "Dick" Lowry
Braniff Airways, Inc.
Oklahoma City-Dallas
December 14, 1939



K. J. "Ken" Boedecker
Wright Aeronautical Corp.
Oklahoma City-Dallas
December 14, 1939

BOEDY'S ALBUM



Ann (Mrs. Ray) Shrader
Braniff Airways, Inc.
Dallas, Texas
December 14, 1939



Edna (Mrs. Win) Sargent
Braniff Airways, Inc
Dallas, Texas
December 14, 1939



Louise (Mrs. F.) Say
Booth-Henning Inc.
Dallas, Texas
December 14, 1939



Howard V. Woodall (QB)
American Airlines, Inc.
Dallas, Texas
December 15, 1939



W. Leo Slaughter
Douglas Aircraft
at Dallas, Texas
December 15, 1939



Tracy R. Walsh
Braniff Airways, Inc.
Dallas, Texas
December 15, 1939



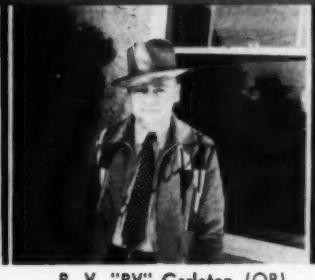
Merrel Brock (QB)
Braniff Airways, Inc.
Love Field, Dallas
December 15, 1939



M. P. "Dick" Hair (QB)
Modern Air Travel Co.
at Dallas, Texas
December 15, 1939



J. B. "Jack" Jaynes (QB)
Civil Aeronautics Authority
Fort Worth, Texas
December 15, 1939



R. V. "RV" Carleton (QB)
Braniff Airways, Inc.
Dallas, Texas
December 15, 1939



Ruth Arnestad
American Airlines, Inc.
Dallas-New York
December 16, 1939



Mary Robinson
American Airlines, Inc.
New York-Newark
December 16, 1939



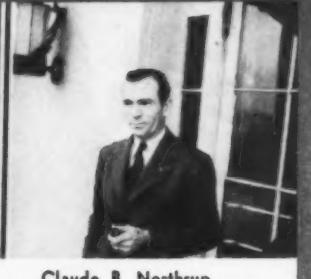
R. A. "Bob" Latta
Eastern Air Lines
at Paterson, N. J.
December 20, 1939



George A. Shealy (QB)
Delta Air Lines
Atlanta, Georgia
December 26, 1939



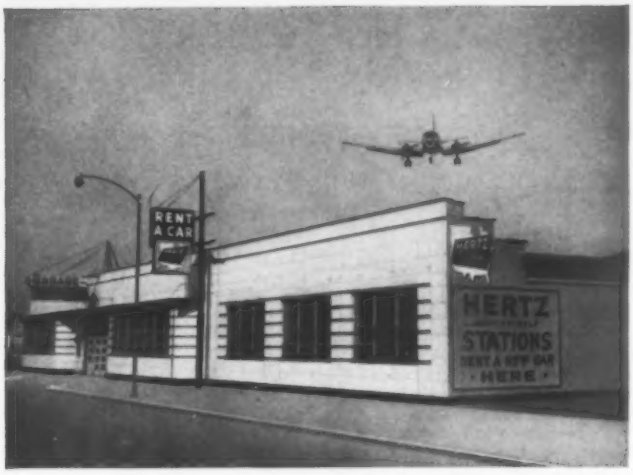
E. C. "Boss" Davis
Delta Air Lines
Atlanta, Georgia
December 26, 1939



Claude B. Northrup
Civil Aeronautics Authority
Atlanta, Georgia
December 26, 1939

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New York
Niagara Falls
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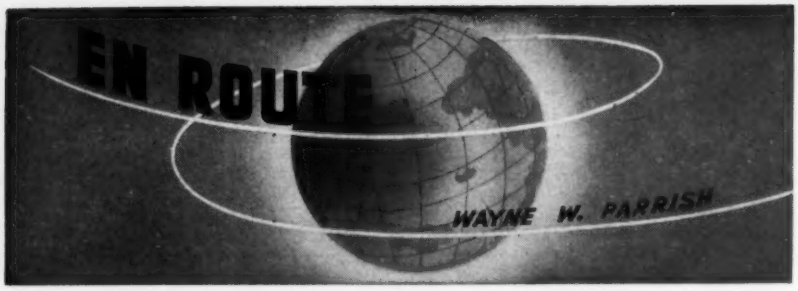
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Motorless Belgrade: It was about 9:30 at night when I rambled into the heart of Belgrade, capital of Yugoslavia, in my tiny beaten-up taxi. What I noticed immediately was the almost complete absence of vehicles. I saw several good-looking trolley-buses loaded to the brim with people, and there were a few people walking along the sidewalks. But the streets were empty of traffic.

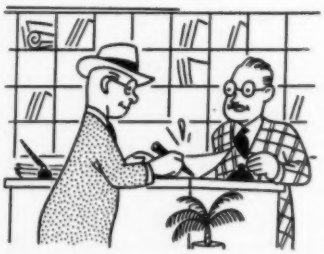
The city seemed to be well-lighted and clean. Buildings were all of stone and most of them from four to six stories in height. Very few shops were open. Neon signs were entirely absent (although later I found about a half dozen in the city).

As my taxi rounded a corner and headed toward my hotel, I noted about a dozen cars parked in front of it. I was to learn that this is about the maximum number of cars to be found at any time in one place, and the Majestic was the only place in Belgrade where such an aggregation would be found.

✣ ✣ ✣

Room with Bath: The driver took my bag into the hotel and I sauntered up to the registration counter. My arrival had been duly anticipated and I signed some forms. I was told firmly that I could have the room for two nights only. I asked about meal times and was told I could eat until 11 p.m. Off to the side of the lobby I had seen a large room which had the appearance of a cocktail lounge, although it was more for coffee than anything else. It was smoke filled and humming with conversation.

I didn't have any local money—the



currency is the *dinar*—but the driver didn't seem to expect any. I was taken to my room which turned out to be in a new wing reached through a series of dark untidy corridors. But the room itself was good. Not only that, I had my own private bath. What is all this talk, I asked myself, about poor accommodations in Yugoslavia? I've seen much worse. (I found out later I was in just about the only modern hotel in the country).

A quick face wash and out I went. I figured I had an hour to take a look at the city before eating. I had noticed lots of people walking on a broad avenue a short block from the hotel, so I headed that way.

✣ ✣ ✣

Promenade: What I found was one of the most interesting sights I've seen anywhere in the world. It seems that most of the city's half-million population gather in the down-town area every night and parade up and down for hours. There were many thousands, anyway. I found myself moving with a mass of people, most of whom were talking and laughing and just strolling along.

Then I became conscious of sounds which were not familiar. These were sounds of people walking and talking on a big street without any traffic noise whatever. There were a few trolley-buses but these were on rubber tires. A very few automobiles could be seen or heard infrequently. The sidewalk crowd spilled



out into the street. The scene had all the appearance of a big avenue cleared of traffic for a parade which hadn't yet started.

This broad avenue was well lighted. There were a few shops with lighted display windows. And every coffee place, including a number of side-walk cafes, was jammed to capacity.

✣ ✣ ✣

Blondes, etc.: Nobody paid the slightest attention to me, although I was conscious that my bright U. S. tie and relatively new clothes and clean white shirt stood out all too plainly. I felt almost like an invisible ghost who was intruding on a party. I looked at the people and found them to be healthy, robust and with all the outward appearance of gayety. They weren't well dressed, most of them, but they weren't down and out, either. Many of the women were good-looking and I recognized types that I have seen in the U. S. What surprised me most, I guess, were the many blondes, both men and women, and the general absence of swarthy types which I had expected to find. It could be said of a great many that they were handsome.

So this was the evening promenade, the social activity of Belgrade. Night after night, young chaps arm in arm with their gals, older men talking at a great rate, one group waving recognition to another, walking up and down the main avenue. No bright clothes, no fashionable hats, at least half of the men without ties but, on the other hand, no extreme in the way of tatters or beggars. In fact, I never saw a beggar anywhere in Yugoslavia. Put 1951 clothes on these people and the majority would pass on New York's avenues as though they had been there all their lives.

✣ ✣ ✣

Moscow Hotel: There were three neon signs. One for my hotel, one for the only cinema on the main avenue, and one for the Moscow Hotel, which is popular with the few Americans who live in Belgrade and which has an enormous coffee safe jammed at all hours. The Moscow Hotel is the only reminder of anything Russian in Belgrade. The reason is a simple one—the hotel was built and named many years ago; because of this its name has survived the purge of everything U. S. S. R.

Every night that I was in Belgrade I joined the promenade and never tired of looking at the people. Just as the Champs Elysees in Paris is cosmopolitan where you find people and faces from all over the world, so the promenade in Belgrade is representative of Yugoslavia —the Macedonians, the Slovenes, the Croats, the Dalmatians, the Hertzgovinians, the Serbs and the Montenegrans who make up the country. Each is a type. Belgrade's promenade is the social outlet for a city starved of motor vehicles and things to do and places to go.

I found my way back to the Majestic and went through the smoke-filled coffee lounge and entered what is advertised to be one of the leading "garden" restaurants of Yugoslavia. It was slightly over-advertised, but on good evenings



the center roof is drawn back to give an open-air atmosphere. A trio was playing poorly. I found the headwaiter spoke a little English and I ordered dinner from the French side of the menu. I forget what I had but it was adequate. I turned in shortly afterwards to get my first night's sleep in Yugoslavia.



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The Collins 17L transmitter provides transmitting facilities on all channels reserved for aircraft communication in the VHF band. Its frequency range is 118.0-135.9 megacycles, and all of the 180 channels assigned in this range are easily selectable over a simple and positive remote control system. The power output on voice is conservatively rated at eight watts. With this power, and the greatly increased number of frequencies now available, the pilot is assured that transmissions will be received and answered at the busiest air terminals.

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NEWSLETTER (*Continued from opposite page 3*)

PLANES AND EQUIPMENT

New standards for determining the number of passengers to be carried on airliners have been proposed by CAB, which will accept comments on the regulation until January 30. Maximums, including crew members, are: DC-3, 31; Super DC-3, 35; DC-4, 83; DC-6 and 6B, 87; Convair 240, 51; Lockheed 18, 17; Lockheed 049, 87; 649 and 749, 69; 1049, 94; Martin 2-0-2, 53; 4-0-4, 45; Boeing 377, 96; Boeing 307, 61; and Curtiss C-46, 67.

North American B-45 four jet bomber is being used by General Electric as a flying laboratory to test the J-73 and J-47-GE-17 reheat engine. Fifth engine is carried in a nacelle under bomb bay.

An Avro Orenda jet engine has been delivered to Solar Aircraft Co., which is to develop an afterburner for the Canadian power plant. The Orenda-with-afterburner is destined to power Avro's CF-100 all-weather fighter.

First Convair T-29B will be retained by the company for a test program. Plane differs greatly from the T-29A and includes cabin pressurization to permit training at 20,000 feet without the need for oxygen equipment.

USAF's L-20A, the de Havilland Beaver, is now at Edwards AFB for Phase IV (performance) and Phase VI (service) flight tests.

The DHC-3 King Beaver, an improved and enlarged version of the Canadian de Havilland Company's DHC-2 Beaver, has made its first flight and has been renamed the "Otter" to avoid confusion between the two types. Otter's provisional gross weight is 7,200 lbs. at which weight it has 2,175 lbs. available payload with 500 miles range. Seating arrangements varying from eight to 14 passengers are provided in the cabin. Powered by a single Pratt & Whitney H-R-1340 600-hp engine, the Otter has a cruising speed of 145 mph.

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MILITARY

Air Force has released official photographs of much-discussed Boeing XB-52 eight-jet bomber. AF explained that pictures were released because moving the plane to a more exposed area of Boeing's Seattle plant for engine run-ups had made it impossible to maintain external security on the plane any longer. Photographs show a plane similar to six-jet B-47, although obviously much larger and with a deeper fuselage. Engines are mounted in four pairs in under-wing nacelles. Main landing gear consists of four main struts, two fore and two aft, each having dual wheels. The eight main wheels retract into the fuselage. There are small, single-wheeled outriggers located near each wing tip.

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CIVIL

James S. Ricklefs, president of Rick Helicopters, Inc., Los Angeles, bought the assets of helicopter division of Alaska Airlines, and a new company, Alaska Helicopters, Inc., has been formed to operate the three Bell helicopters acquired in the purchase. Company will specialize in survey work, but the machines will also be available for general charter. John D. Shield, veteran Alaskan helicopter pilot, has been named vice president and will manage the company. Operations base will be Merrill Field, Anchorage.

Larry W. Hunt, of Fresno, has been reelected president of California Aviation Trades Association. A. Biederman, of Glendale, was named vice president, and W. E. Hagelin, Glendale, sec.-treas.

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AIRLINES

Following CAB's refusal to okay its proposed transcontinental coach fares, United Air Lines filed adjusted rates, to be effective Jan. 9. Now proposed is $29 fare New York-Chicago, $75 Chicago-San Francisco-Oakland, $99 New York-San Francisco-Oakland, exclusive of tax. Original proposal was $99 eastbound and $88 westbound New York-San Francisco-Oakland, $79 eastbound and $75 westbound Chicago to the coast, and $24 in either direction Chicago-New York.

An "off peak" New York-Atlanta DC-4 coach operation has been proposed to CAB by Capital Airlines, to start Jan. 11. One-way fare would be $35.65 (against standard $50.10). Flight would leave New York 10:15 p. m., arriving Atlanta 2:10 a. m. Atlanta trip would leave 1 a. m., arriving 4:48 a. m.

Trans World Airlines will shortly start using progressive type maintenance, doing away with the 10,000 hour overhaul as an individual operation on its Martin 4-0-4 aircraft and will later initiate this type maintenance on its 66 Lockheed Constellations.

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CIVIL AERONAUTICS BOARD

President Truman reappointed Donald W. Nyrop as chairman of CAB for another year. Oswald Ryan was reappointed vice chairman. Nyrop's term as a Board member runs through December, 1953; Ryan's one year longer. There are no memberships expiring this year.

Metropolitan Air Commuting, aspirant for a New York helicopter certificate, asked CAB to reconsider its recent decision conditionally authorizing New York Airways to conduct rotary wing operations in the New York area for five years. Reconsideration should be made, MAC said, on grounds that the original decision is "arbitrary, unreasonable and extremely unfair and not supported by the facts of record."

United Air Lines asked CAB to reconsider its recent approval of the acquisition of Mid-West Airlines by Purdue Research Foundation and either to disapprove the deal or withhold decision until the Mid-West Renewal Case is decided. Acquisition and renewal phases of the case were divorced by CAB with a renewal decision due to follow approval of the acquisition in about six months.

Final mail rate docket of West Coast Airlines has been reopened by CAB because it feels current rates of the local service line are excessive. Board directed WCA to submit a financial and traffic forecast for the future year beginning Jan. 1 together with a "reasonable" estimate of mail pay requirements. Forecast must be sub-

mitted no later than Jan. 31. For year ended Sept. 30, 1951, WCA's mail pay was $660,482 and its net operating income $192,729. Under substantially same mail pay for 1950, the line's net income was $98,000.

W. R. Grace & Co. urged CAB to stay its investigation of the Panagra Management Agreement for 30 days pending an arbitration proceeding between Grace and Pan American World Airways, joint owners of Panagra. Investigation of the agreement was started by CAB months ago to determine whether Grace or Pan American had realized increased control over Panagra under terms of the agreement. Grace disclaims any increased control on its part and charges Pan Am with violating arbitration provisions of the agreement.

Application for authority to serve Las Vegas, Nevada as an intermediate between Los Angeles and San Francisco has been filed with CAB by Western Air Lines. If granted by the Board, it would permit Western to supplement its present east-west Las Vegas service with north-south flights operating the Los Angeles-San Francisco-Seattle route.

LABOR

New three-year contract signed between United Auto Workers-CIO and The Glenn L. Martin Co. gives the union a big wedge in future contract negotiations with other aircraft companies. Included in the new pact, UAW says, are a union shop, pay hikes averaging about 12c per hour and creating a $2.20 top, automatic pay progression in all labor grades but the top three (where progression is automatic halfway up the ladder), a 4c annual improvement factor, payable in the last pay period in June, a deferred 5c an hour increase payable in March 1953, a change in the shift differential from a flat 15% to a cash difference, upgrading of several job occupations, and several other features. All of the economic issues in the new Martin contract were made retroactive to Nov. 19, but some will require approval of the Wage Stabilization Board.

First union shop agreement in a major aircraft plant on the west coast has become effective at Hiller Helicopters where the International Association of Machinists is the collective bargaining unit for manufacturing stores and inspection employees. Agreement was signed after workers voted preference for a union shop in November. All employees falling within the bargaining unit were required to make application to become members of the IAM Lodge 1327 by Dec. 27 or be subject to termination at the union's request. New employees must join the Lodge within 30 days of date of employment. Aircraft industry on the west coast previously has entered into maintenance of membership agreements with unions, but union membership has never heretofore been required of employees.

Wage dispute between the IAM-AFL and Boeing's Wichita B-47 plant was certified to the Wage Stabilization Board for recommendations by President Truman. Union, which had set a strike for Jan. 2, wants a union shop, automatic pay progression and wage hikes of 8 to 17½c an hour. Boeing offered pay boosts of 5 to 12½c an hour.

UAW-CIO members at Chance Vought's plant in Dallas authorized a walkout 2,546-128 but set no date. Eight issues, most of them dealing with union grievances, are at stake.

San Francisco Wage Stabilization Board approved 5% wage boost negotiated in October between Douglas and its IAM-AFL workers at Santa Monica and El Segundo. Increases average 9.4c an hour.

Convair agreed on a new wage pact with its IAM-AFL employes at San Diego although the contract does not expire until next August. Terms are reported similar to those of the Douglas and Lockheed pacts reached some months ago. Wage boosts are retroactive to Dec. 24.

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FINANCIAL

North American Aviation reported net income of $6,421,612 on sales of $179,443,376 for the fiscal year ended Sept. 30 against $8,086,255 profit on $143,268,418 sales in the previous year. Company had a firm backlog of $551,000,000 as of Sept. 30, and another $441,000,000 worth of orders in process of negotiation.

Cessna Aircraft Co. had net earnings of $795,000 on sales of $26,482,320 for fiscal year ended Sept. 30, against $227,000 profit on $7,158,000 sales in previous year. Sept. 30 backlog was $80,000,000, an increase of $50,000,000 over backlog at end of previous fiscal year. Military sales accounted for $18,869,842 of the sales volume.

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AROUND THE WORLD

Italy's aircraft industry expects U. S. contracts worth about $180 million during the next two or three years. Fiat and Macchi are expected to be the major beneficiaries.

British court has upheld a Hong Kong Supreme Court ruling that 40 transports acquired by Civil Air Transport, Inc., from the Chinese Nationalists are legally owned by the Chinese Communists. Planes are 17 Douglas C-47's, 18 Curtiss C-46's and five Convair 240's. CAT's Claire Chennault still plans to appeal up to the London Privy Council if necessary.

Society of British Aircraft Constructors is considering fitting a fixed wing to the fuselage of a Cierva autogiro as a step toward a convertiplane. A similar installation is believed possible on the Westland S-51 helicopter.

Breda, one-time leading Italian airplane builder, has ceased aeronautical activities. Breda-Zappata B.Z. 308 and Breda-Pittoni B.P. 471 transports were considered some of Italy's leading postwar plane designs.

Canada's aircraft production proram is to be headed by E. V. Rippingille, Jr., president of General Motors Diesel, Ltd., London, Ontario. He replaces Air Vice Marshal F. S. McGill, who returns to private industry in Montreal.

Swiss government and France's SNCASO are negotiating for the right to build Britain's Martin-Baker ejection seat. SNCASO reportedly has built two ejection seats of its own.

France's Turbomeca has received a contract to design and build a 13,228 lb. thrust jet engine to power French fighters now on drawing boards.



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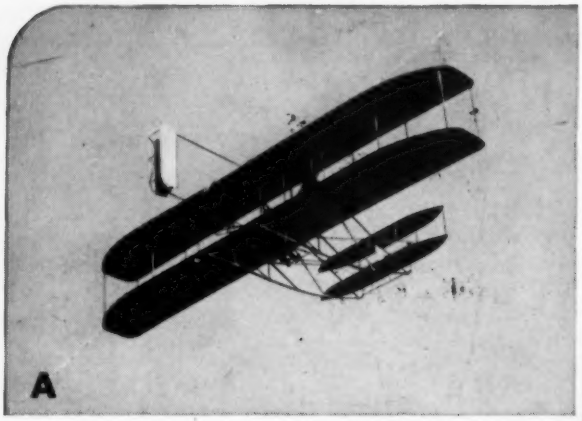
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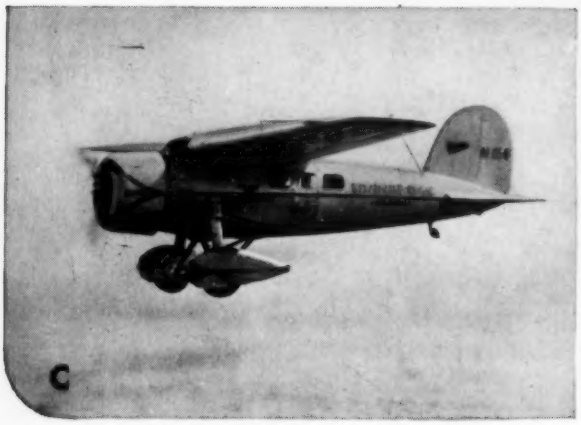
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B. A 1911 photograph of the first "hydro-aeroplane", developed by Glenn Curtiss, for which he was awarded the Langley medal of the Smithsonian Institution.

C. The "Winnie Mae", piloted by Wiley Post, completed a record globe-circling flight in 1931, traversing 15,474 miles in 8 days, 15 hours and 59 minutes.

D. Traveling at a speed of more than 1,000 miles per hour, the jet propelled D-558-2 Douglas Skyrocket recently surpassed all previous altitude records for any type of aircraft.

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AVIATION PRODUCTS

American Aviation

NEWSLETTER

Entered as Second Class Matter January 14, 1952 Vol. 15 No. 33

RECEIVED 14 JAN 1952

New financing plan to pull The Glenn L. Martin Co. out of its predicament is now complete, needing only the approval of Martin stockholders. In all, a total of $32 million in new money will be put into the organization. Money will come from five sources:

(1) **Eastern Air Lines**, which has 60 4-0-4 airliners on order, and **Trans World Airlines**, which has 41 coming, will both pay an additional $25,000 per plane over the original purchase price, in effect splitting the $50,000 loss on each plane between Martin and the airlines. This will bring in more than $2.5 million.

(2) **New V-loans totalling $11 million**, raising the firm's total V-loan indebtedness to $27.5 million. These loans are guaranteed by the Navy, which has cognizance over the Martin plant.

(3) **An RFC loan of $7.5 million** under section 302 of the Defense Production Act which authorizes such loans when private financing is unobtainable.

(4) **Release of a $4.5 million RFC claim** on the proceeds of 12 2-0-2A transports which Martin will sell as they are turned back by TWA in return for 4-0-4's. This money originally was to have been applied against Martin's $14.5 million RFC loans but the arrangement does not disturb RFC's basic collateral on the loan (a first mortgage on the plant and facilities).

(5) **Remainder will be new private capital** organized by Martin's financial advisers, Smith, Barney & Co. Source of this money was not given but the group reportedly will include Laurance S. Rockefeller, who has interests in Eastern Air Lines, McDonnell and Piasecki and Reaction Motors, Inc.

Major factor in the financial reorganization involves a "revitalization of management" and Navy Secretary Dan A. Kimball explains that additional top management personnel will be brought in by the private capital group. Continuance of a management group satisfactory to Navy, Air Force, RFC and Office of Defense Mobilization will be insured by a voting trust to be created by the new interests and Glenn L. Martin, company founder and board chairman.

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U. S. has toughened its policy with respect to countries not parties to bi-lateral air transport agreements and will insist on reciprocal rights for U. S. lines.

Most recent evidence was last week's action against CUBANA when Civil Aeronautics Board suspended the line's New York-Havana permit because National Airlines has been barred by Cuban Government from operating New York-Havana non-stop flights. Previously, bi-lateral negotiations with Mexico fell through when U. S. delegation, headed by CAB Chairman D. W. Nyrop withdrew because Mexicans would not agree to a U. S. line operating parallel to CMA over the non-stop Mexico City-Los Angeles route. Also, Board has threatened LAV, the Venezuelan line, with curtailment of operating authority because of restrictions imposed on U. S. lines by Venezuela.

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Reversing an earlier stand, the Air Transport Association has gone on record favoring: (1) Development of a jet transport by the airlines and plane builders, rather than using U. S. funds for development of a jet airliner prototype; (2) government support of a prototype aircraft testing program so that intelligent government regulations on jet transports can be written; (3) U. S. financial aid in the design and development of a plane for local service operators.

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In a follow-up to the rash of Curtiss C-46 accidents, CAA's Office of Aviation Safety has ordered its regional administrators to tighten up inspections on the plane. Several of the C-46's in New York were grounded as a result.

Chairman Edwin C. Johnson of the Senate Interstate and Foreign Commerce Committee, meanwhile, asked CAB for full information on the plane's history, present C-46 operators and recent accidents. Johnson's request, however, is not considered the prelude to a Senate inquiry unless CAB's studies show something startling in C-46 crashes.

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In his fourth quarterly report, Defense Mobilizer Charles E. Wilson declared the aircraft industry is now almost completely engaged in military production. It expanded by 67% in 1951 and more than 400,000 are now on aircraft payrolls. Other aviation highlights in Wilson's report:

Russia now has more than 20,000 planes, many of them jets of excellent quality.

Because of long aircraft lead times, not a single U. S. plane that was not in production before Korea has yet been used in combat there.

Machine tool bottlenecks are gradually being overcome. Shipments are now [illegible] than $800 million annual rate and will rise to a $1.25 billion annual rate by the end of 1952.

Aluminum production is now 860,000 tons a year as against 735,000 tons in June, 1950. By 1954 the pre-Korea rate will have been more than doubled.

Shortages of nickel, cobalt, tungsten, manganese, molybdenum, colombium and tantalum, all used in jet engine production, are still acute and may become even worse.

Substitutes for these metals have been tried and some are successful. Thus, titanium is replacing stainless steel in some aircraft applications and the use of "leaner" chrome alloys for turbine blades is being tested.

Civil air traffic increased 30% last year, with transport deliveries totalling 79 and lightplane deliveries exceeding 2,400. An additional 397 airliners and more than 8,500 lightplanes have been approved for construction over the next 30 months.

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Government mobilizers expect 1952 to be a big production year. Aircraft output should jump 115%, electronics 268% and machine tool deliveries are slated to be 200% higher than 1950. Defense output is expected to reach a $50 billion peak this year.

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As 1952 began, Consolidated Vultee, Douglas and Lockheed all had commercial backlogs extending deliveries into 1954. This marks the first time so large a group of transport builders has had such huge commercial backlogs.

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A newer, larger and longer-ranging bomber than the Russian version of the B-29 has been reported. Few details are known except that the plane has the same general configuration as the B-29 copy, the Tupolev-4. It is not as large as the B-36, however. It is believed to be of Russian design rather than a scaled-up version of the Superfortress.

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MANUFACTURING

Boeing, in a move to coordinate engineering and manufacturing functions of both its Seattle and Wichita divisions, has appointed Wellwood E. Beall senior vice president with general direction for these functions at both divisions. C. B. Gracey, v. p.-operations at Seattle, becomes v. p.-manufacturing at Wichita and Clif Barron becomes v. p.-divisional controller at Wichita.

American Aviation

NEWSLETTER (ABC) **Vol. 15, No. 33**

WAYNE W. PARRISH, Editor and Publisher
ERIC BRAMLEY, Executive Editor

American Aviation is published every Monday by American Aviation Publications, Inc., Washington, D. C. Printed at the Telegraph Press, Harrisburg, Pa. Subscription rates for United States, Canada, Mexico, Central and South American countries—$5.00 for 1 year; $8.00 for 2 years; $10.00 for 3 years. All other countries—$7.00 for 1 year; $12.00 for 2 years. Entered as Second-Class matter in Washington, D. C., and Harrisburg, Pa.

Editorial and business offices: 1025 Vermont Avenue, N. W., Washington 5, D. C. Telephone—STerling 5400.

American Aviation incorporates Airports and Air Carriers, Airports, Aviation Equipment, The American Pilot, Aviation Sales and Service, U. S. Aviation, and American Airports. All rights to these names are reserved.

Four Model 50 Beech Twin Bonanzas have been purchased by the Army Field Forces and the plane has been designated YL-23. First plane will be delivered late this month.

Consolidated Vultee expects to receive orders for 10 Convair 340's from Aeronaves de Mexico, S. A., and Compania Mexicana de Aviacion, S. A., (CMA).

Jet flight test center at Los Angeles County Airport in Palmdale will be operated by North American Aviation as soon as USAF plans are complete. USAF expects to spend $30 million to develop the airport but it has not yet announced whether part of the base will be reserved for civil operations.

Ryan Aeronautical Co., which has just received $6 million in orders for airframe components and engine accessories, now has a backlog of more than $46 million. Some production is scheduled for late in 1954.

Small Defense Plants Administration has set up an Office of Loans and an Office of Materials to aid small firms get financial assistance and materials, equipment and facilities.

Arthur F. Flood, vice president and comptroller of Fairchild Engine & Airplane Corp., has been elected executive vice president of the corporation. He will also continue to serve as comptroller.

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PLANES AND EQUIPMENT

First flight of Chance Vought's AU-1 Navy attack plane has been completed. Designed for use by Navy and Marines to give ground troops close support, the plane is a modified version of the F4U Corsair, sole propeller-driven fighter in production.

Sikorsky H-19 helicopter made an 1,800-mile flight from Great Falls, Mont., to Fairbanks, Alaska, probably the longest trip ever made by a rotary wing plane. Trip took five days.

Despite the crash of Martin's No. 1 Canberra, company officials do not expect the flight test program on the plane, which will be called the B-57A when Martin builds it, to be held up. The No. 2 English Electric Canberra is now in flight status.

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AIRLINES

World's airlines in 1951 (excluding Russia and China) carried an estimated 39,000,000 passengers, an increase of 25% over 1950, according to International Civil Aviation Organization. Cargo volume was 616,000,000 ton-miles, up 19%. Plane-miles totaled 963,000,000 against 890,000,000 in 1950.

TWA's twin-engined Martin 4-0-4's are to go into scheduled service Jan. 15 on company's eastern segment, connecting Kansas City with New York and Washington with service to 10 intermediate points. Other points on domestic system will be added as remainder of the 40 new planes now on order are delivered.

A system of reserved cargo space on all flights has been inaugurated by U. S. Airlines, certificated all-cargo carrier. New system, according to J. A. Wooten, president, guarantees shippers next-day

delivery to any point on company's north-south system, with the guarantee for reserved cargo shipments backed up by an offer to refund the difference between U. S. Airlines' charges and the first-class rail rate applicable between the shipping points.

Pan American World Airways' trans-Atlantic all-cargo service, started last week, is being operated with a Douglas DC-6A leased from Slick Airways. Slick has been checking out five PAA flight crews, and Slick personnel will handle the maintenance. The cargo line has taken delivery on its initial order of three DC-6A's but three more have since been ordered. West coast sources state PAA will soon supplement its order for 18 DC-6B's with another major equipment order.

Northwest Airlines is opening a school in Japan to train native pilots and ground personnel in connection with the internal Japan Air Lines now being operated by NWA under contract.

Donald A. Duff has resigned as vice president in charge of traffic, sales and public relations of Frontier Air Lines, and was expected to announce a new connection in the air transport industry shortly. He was president of Challenger Airlines before its merger with Monarch to form Frontier. O. A. Byrne, Frontier's traffic manager, has also resigned.

Todd G. Cole has been named comptroller of Delta Air Lines, filling the vacancy created by death of L. B. Judd. Cole was formerly chief accountant.

Ben B. Edwards is on leave from his position as vice president of Overseas National Airways to serve as executive director and assistant to the president of Independent Military Air Transport Association, with headquarters in Washington.

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CIVIL

Federal court has awarded $11,064,515 to Wichita, Kans., for the former municipal airport taken over by the Air Force. AF had originally guaranteed the city about $9,000,000 as minimum for construction of a new airport. Approximately $4,000,000 has already been paid into the court, permitting the city to accept bids for work on first phase of construction of the new field.

Tucson, Ariz., Airport Authority has converted an annual operating loss into a profit of $366,567 in one year. The authority, created by the city in 1949, is making more than $33,000 per month. Profit is being put back into Tucson Municipal Airport as payment for its large expansion program.

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LABOR

UAW-CIO has signed a three-year contract with Fairchild Aircraft Division providing for a modified union shop; a 9c pay hike; an escalator clause tied to the cost of living; a 4c annual improvement factor; hike in shift differential from 8 to 10c; improved sick leave, insurance and other benefits. Economic issues are retroactive to Oct. 22 and WSB must approve some of them. Fairchild's proposed rates for its Chicago plant have been turned down by a regional WSB and the C-119 builder is planning to appeal. Permitted rates, some 17-21c below those of Chicago area aircraft engine builders like Ford and Studebaker, would not enable Fairchild to hire enough skilled help.

Treating a union as an employer for the first time, National Labor Relations Board had ordered an election for professional and administrative employes of the Air Line Pilots Association-AFL. Workers will chose their bargaining agent from between ALPA itself or the independent ALPA of Professional and Administrative Employes.

Kaman Aircraft Corp. has adopted a cost-of-living pay plan and has raised the wages of hourly and certain salaried workers by 5c an hour. Other salaried workers get a 3.2% hike. Wages will be adjusted twice yearly.

New wage scales for IAM-AFL workers at Consolidated Vultee's San Diego division, if approved by the WSB, will be $1.27 to $2.26 an hour for production workers and $1.20 to $2.56 for office and technical workers.

Regional WSB at San Francisco has approved a 6c hike for IAM-AFL workers at Menasco Manufacturing Co.; a hike of 5 to 9c an hour for Collins Radio workers at Burbank; and a swing shift jump of 3c at Hydro-Aire.

Group insurance benefits proposed by Lockheed for its IAM-AFL and unorganized workers have been approved by the WSB. Benefits include $4,000 life insurance, $4,000 for accidental death or dismemberment, $30 weekly for disability up to 26 weeks, hospitalization coverage up to $1,500 and surgical benefits up to $300.

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CIVIL AERONAUTICS BOARD

Top Officials of Trans World Airlines testified at hearings in the North Atlantic Renewal Case urging a permanent trans-Atlantic certificate for TWA and route revisions to permit "more effective" competition for Pan American World Airways. TWA's president Ralph S. Damon testified that TWA has been and is the low-cost trans-Atlantic operator, yet is the only line with the exception of KLM without permanent operating rights. Other TWA witnesses estimated that trans-Atlantic travel would grow from 338,648 passengers this year to 500,000 in 1953 with tourist service a major factor. TWA expects to up its tourist frequency from one to five daily flights in 1953. Pan Am was to follow TWA at the CAB hearings and push for maintenance of the "status quo" in route structures.

Wisconsin Central Airlines' certificate was extended to Sept. 30, 1955, and Mid-Continent Airlines' local service route between Chicago and Sioux City reaffirmed as CAB took simultaneous action on two pending local service cases. In Wisconsin Central Renewal Case, Board strengthened WIS's renewed routes by adding new segments extending out of Twin Cities to Fargo and Grand Forks, N. D., International Falls, Minn., and Wausau, Wis. Ten other points were dropped, and competing trunk-line service of Northwest Airlines suspended at Duluth-Superior and Eau Claire. In North Central Route Investigation proceeding, MCA's rights between

Chicago and Sioux City were continued but other segments of local Route 106 were suspended, with Wisconsin Central awarded Chicago-Twin Cities segment.

Hearings in the Wiggins Airways Renewal Case got underway last week with the company's president Joseph Garside presenting a long-range plan aimed at an eventual all-helicopter operation in the New England area. Unless Wiggins is continued, Garside contended, New England will be stripped of all air services except trunk operations to only the largest cities.

Final trans-Atlantic mail rate proceedings of Trans World Airlines and Pan American World Airways were consolidated by CAB at the request of TWA. CAB indicated it would attempt to get both lines on final mail rates at the earliest possible date.

Pan American World Airways asked CAB to deny a petition of W. R. Grace & Co. for stay of the Panagra Management Proceeding. Terming the Grace petition as "just a come-on," Pan Am said the controversy is public and not, "as Grace seeks to make it, a merely private controversy." Grace wants CAB delay to permit "of an arbitration proceeding." Pan Am said it hasn't been made clear "just what it is that Grace wishes to arbitrate."

Robinson Airlines and Metropolitan Air Commuting filed merger agreement with CAB and asked Board to reopen New York Area Helicopter Service Case to consider possible certification of the merged company. Carriers told CAB the case can be a test for determination of whether existing lines or a new class of carriers should provide local helicopter services.

CAB has ruled finally that the New England-Southern States Merger Investigation will not be expanded to include issues relating to possible transfer of New England Trunkline stops to local service lines. Acting on a petition of E. W. Wiggins Airways for reconsideration of a previous ruling on the point, CAB held that such expansion would unduly complicate the case.

Delta Air Lines' certificate for Route 24 amended by CAB to permit service to Jackson, Miss. and New Orleans on east-west all-cargo flights. Delta's Route 54 certificate was also amended to permit service to Greenville-Spartansburg, S. C. on the same all-cargo flights serving Atlanta and points north. Awards become effective Feb. 25 and terminate Aug. 11, 1954.

Five certificated airlines were placed on new mail rates by CAB last week. **Continental Air Lines,** with 15.6% cut, was placed on a $2.97 per ton-mile final rate or about $1 million annually, effective from Oct. 1, 1951. **Northeast Airlines** was given a new temporary rate effective from Nov. 1, designed to average $1,192,000 annually, or about $400,000 under old rates. **Pacific Northern Airlines** was given a 47c base rate for intra-Alaska operations and a 50c base rate for newly-authorized U. S.-Alaska services, effective from Oct. 1. **Southern Airway** annual pay beginning with Oct. 1, was fixed at approximately $1,500,000. **Central Airlines'** back pay for the period September, 1949 through September, 1951, was fixed at $1,788,023 and a new 80c base rate set through April, 1952, and a 65c base for the period beginning May 1, 1952.

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FINANCIAL

Manufacturers

Rohr Aircraft Corp. reported a fiscal year net to July 31 of $968,107, or $1.61 a share. This compares with earnings of $2.43 a share in the previous fiscal year. Backlog exceeds $100 million.

Aeroquip Corp. expects a first quarter net to Dec. 31 of $270,000 as against $160,000 for the same period last year.

Lear, Inc., who backlog is now $40 million, had a 1951 sales volume of $21,000,000, a 163% jump over the $7,973,937 in 1950.

Airlines

National Airlines netted $125,200 in November on gross revenues of $2,262,456, a gain of 12.8% and 43.1%, respectively, over November, 1950. For the 11 months ended Nov. 30, NAL netted $2,377,993, or $2.38 a share as against a net of $1,980,164, or $1.91 a share, for the same period of 1950.

Northeast Airlines had a 11-month net of $253,-419 on gross revenues of $6,872,430 as against a net of $377,438 on revenues of $5,807,007 for the same period in 1950.

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AROUND THE WORLD

Italian machine tool builders expect to receive $1.2 million in U. S. government orders over the next three years. Most of the orders will be placed this year.

India's scheduled airlines are to receive a subsidy based on the differences between their total revenues and actual costs. A standard cost formula is being developed.

Society of British Aircraft Constructors, answering rumors the Farnborough flying show would not be held this year, set the show dates as September 2-5.

British machine tool makers have raised their prices 7-10% as a result of recent hikes in the wages of machine tool workers there. New prices, however, are still competitive with those of U. S. producers.

British Commonwealth Pacific Airlines has received approval from Britain, Australia and New Zealand to purchase six de Havilland Avon Comets for $1.4 million each. Delivery will be in 1954-1955, with the planes being used to connect the U. S. and Canada with Australia and New Zealand.

Air France will probably use its Breguet 76 double deck transports (107 passengers) between France and Algiers. Block-to-block speed on the 870-mile flight will be 208 mph.

SABENA Belgian Airlines carried 250,000 passengers in 1951, a jump of 28% over 1950 and a new all-time high. Line's 50 planes logged 12,-200,000 revenue miles in 1951.

France's National Assembly has appropriated funds to complete 40 two-engine SO-30 Bretagne and 8 four-engine SE-2010 Armagnac transports.